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December 16, 2016

Mr. Randy Roberts  
Craft Companies  
1787 S. Broadway  
Denver, CO 80210

Re: Independence  
Traffic Impact Analysis  
Elbert County, CO  
LSC #160800

Dear Mr. Roberts:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Independence development. This site was studied previously in the February, 2008 *Bandera Revised Traffic Impact Analysis* (Bandera TIA) by LSC. As shown on Figure 1, the site is located in northwest Elbert County, Colorado.

## **REPORT CONTENTS**

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday Phase 1 and Buildout site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate growth in background traffic or the site's traffic impacts.

## **LAND USE AND ACCESS**

The site is proposed to include about 920 single-family detached dwelling units and an 800-student public K-8 school. Full movement access is proposed at four locations as shown in the conceptual site plan in Figure 2. Phase 1 or Neighborhood 1 of the site includes about 331 dwelling units without connecting north to Singing Hills Road via the Delbert Road alignment. The 2025 total analysis assumes development of only Neighborhood 1.

## **ROADWAY AND TRAFFIC CONDITIONS**

### **Area Roadways**

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **Hilltop Road (CR 158)** is an east-west, two-lane arterial roadway south of the site. The posted speed limit in the vicinity of the site is 50 mph. The *West Elbert County Transportation Plan* shows a four-lane major arterial with 120 feet of right-of-way in the future. Douglas County has plans to widen to four lanes by 2025.
- **County Road 13** is a north-south, two-lane arterial roadway east of the site. The posted speed limit in the vicinity of the site is 50 mph. The *West Elbert County Transportation Plan* shows a four-lane major arterial with 120 feet of right-of-way in the future.
- **Singing Hills Road** is an east-west, two-lane arterial roadway north of the site. The intersection with Delbert Road is all-way stop-sign controlled. The posted speed limit in the vicinity of the site is 45 mph. The *West Elbert County Transportation Plan* shows a four-lane major arterial with 120 feet of right-of-way in the future. It is assumed Douglas County and Elbert County will widen to four lanes west of Delbert Road by 2025.
- **Delbert Road** is a north-south, two-lane arterial roadway north of Singing Hills Road. The posted speed limit in the vicinity of the site is 40 mph. The *West Elbert County Transportation Plan* shows a four-lane major arterial with 120 feet of right-of-way in the future.

### **Existing Traffic Conditions**

Figure 3a shows the existing traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are from the attached traffic counts conducted by Counter Measures in July, 2016. Figure 3b shows the existing traffic control and lane geometry. Three of the daily counts were repeated in September, 2016 to confirm no major differences with and without school in session. The updated September counts were between 0.9 and 4.6 percent higher than the July counts which confirms there are no major seasonal variations.

### **Existing Accident History In The Study Area**

Figure 3c shows a summary of the accident history within the study area based on data provided by the Elbert County Sheriff's office from January, 2013 to October, 2016.

### **2025 and 2036 Background Traffic**

Figures 4a and 4b show the estimated 2025 background traffic, lane geometry, and traffic control and Figures 5a and 5b show the estimated 2036 background traffic, lane geometry, and traffic control. The 2025 and 2036 background traffic is based on an annual growth rate of about four percent consistent with the expected population growth of Elbert County as estimated by the State Demographer's office. It is noted that the long-term projections in the *West Elbert County Transportation Plan* seem very high without significantly dense development in this area over time. The long range projections in the plan relate to an annual growth rate of about six percent. As mentioned above, a lower but still relatively high annual growth rate of four percent was assumed. Figures 4a and 5a show there is considerable growth forecast in this area with or without development of the site.

**Existing, 2025, and 2036 Background Levels of Service**

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for signalized and unsignalized intersections. Most jurisdictions typically target overall level of service (LOS) “D” for intersections and LOS “D” (unsignalized) and LOS “E” (signalized) or better for minor individual movements.

The intersections in Figures 3a, 4a, and 5a were analyzed as appropriate to determine the existing, 2025, and 2036 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Singing Hills Road/Flintwood Road:** All approaches at this stop-sign controlled intersection currently operate at LOS “B” or better. By 2025, the northbound and southbound approaches are expected to operate at LOS “C” during the afternoon peak-hour. By 2036, the southbound movement is expected to operate at LOS “D” during the afternoon peak-hour. A traffic signal warrant is not likely to be met.
- **Singing Hills Road/Hilltop Road:** All approaches at this unsignalized intersection currently operate at LOS “C” or better. By 2025, this intersection is expected to be signalized and as such is expected to operate at LOS “F” during the morning peak-hour and LOS “C” or better during the afternoon peak-hour through 2036. The poor level of service is due to a very heavy westbound right-turn volume. This may require creating a free right-turn movement.
- **Singing Hills Road/Delbert Road:** All movements at this unsignalized intersection currently operate at LOS “C” or better. By 2025, this intersection is expected to be signalized and as such is expected to operate at LOS “B” during both peak-hours through 2036.
- **Singing Hills Road/Madrid Drive:** All movements at this unsignalized intersection currently operate at LOS “C” or better. By 2025, the northbound and southbound approaches are expected to operate at LOS “D” during the afternoon peak-hour and are expected to do so through 2036. A traffic signal warrant is not likely to be met.
- **Singing Hills Road/Thunder Hills Road:** All movements at this unsignalized intersection currently operate at LOS “C” or better. By 2025, the northbound approach is expected to operate at LOS “D” during the afternoon peak-hour and is expected to do so through 2036. A traffic signal warrant is not likely to be met.
- **Singing Hills Road/CR 13:** All movements at this unsignalized intersection currently operate at LOS “B” or better. In 2025, the eastbound through movement is expected to operate at LOS “F” during the afternoon peak-hour with all-way stop-sign control. By 2036, this intersection is expected to be signalized and such is expected to operate at LOS “B” during both morning and afternoon peak-hours.
- **Hilltop Road/CR 13:** All movements at this unsignalized intersection currently operate at LOS “A”. By 2025, all movements are expected to operate at LOS “B” or better during

both peak-hours. By 2036, this intersection is expected to be signalized and such is expected to operate at LOS “B” or better during both peak-hours.

- **Hilltop Road/CR 5/East Site Access:** All movements at this unsignalized intersection currently operate at LOS “A”. By 2036, all movements are expected to operate at LOS “B” or better.
- **Hilltop Road/Daley Circle:** All movements at this unsignalized intersection currently operate at LOS “A”. By 2036, all movements are expected to operate at LOS “B” or better.
- **Hilltop Road/Flintwood Road:** All movements at this unsignalized intersection currently operate at LOS “C” or better and are expected to do so through 2025. By 2036, this intersection is expected to be signalized and such is expected to operate at LOS “B” during the morning peak-hour and LOS “A” during the afternoon peak-hour.

### **TRIP GENERATION**

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation, 9<sup>th</sup> Edition, 2012* by the Institute of Transportation Engineers (ITE) for the proposed land use.

The site is projected to generate about 9,922 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 391 vehicles would enter and about 696 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 640 vehicles would enter and about 404 vehicles would exit.

These estimates assume typical trip generation rates for single-family detached homes. Most of the data samples used to estimate these rates were located in suburban areas so are likely conservative for the site considering its location.

### **TRIP DISTRIBUTION**

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site’s proposed land use.

### **TRIP ASSIGNMENT**

Figure 7 shows an assignment of the Neighborhood 1 site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

Figure 8 shows an assignment of the buildout site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

## **2025 AND 2036 TOTAL TRAFFIC**

Figure 9a shows the 2025 total traffic which is the sum of the 2025 background traffic volumes (from Figure 4a) and the Neighborhood 1 site-generated traffic volumes (from Figure 7). Figure 9b shows the recommended 2025 lane geometry and traffic control.

Figure 10a shows the 2036 total traffic which is the sum of 2036 background traffic volumes (from Figure 5a) and the Buildout site-generated traffic volumes (from Figure 8). Figure 10b shows the recommended 2036 lane geometry and traffic control.

## **PROJECTED LEVELS OF SERVICE**

The intersections in Figures 9a and 10a were analyzed to determine the 2025 and 2036 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached. Most jurisdictions typically target overall level of service (LOS) "D" for intersections and LOS "D" (unsignalized) and LOS "E" (signalized) or better for minor individual movements.

- **Singing Hills Road/Flintwood Road:** The side road approaches are expected to operate at LOS "D" or "E" in 2036 with or without the addition of site traffic. Traffic signal warrants are not likely to be met.
- **Singing Hills Road/Hilltop Road:** This signalized intersection is expected to operate at LOS "F" during the morning peak-hour and LOS "C" during the afternoon peak-hour through 2036. The poor level of service is due to a heavy westbound right-turn movement. A free right-turn movement may be needed.
- **Singing Hills Road/Delbert Road:** This future signalized intersection is expected to operate at LOS "C" or better during both peak-hours through 2036.
- **Singing Hills Road/Madrid Drive:** By 2025, the northbound and southbound approaches are expected to operate at LOS "D" during the afternoon peak-hours and are expected to do so through 2036 with or without the addition of site traffic.
- **Singing Hills Road/Thunder Hills Road:** By 2025, the northbound approach is expected to operate at LOS "D" during the afternoon peak-hour and are expected to do so through 2036 with or without the addition of site traffic.
- **Singing Hills Road/CR 13:** In 2025, the eastbound through movement is expected to operate at LOS "F" with all-way stop-sign control with or without the addition of site traffic. By 2036, this intersection is expected to be signalized and as such is expected to operate at LOS "B" during both morning and afternoon peak-hours.
- **Hilltop Road/CR 13:** All movements are expected to operate at LOS "B" or better through 2025 during both peak-hours. By 2036, this intersection is expected to be signalized and is expected to operate at LOS "B" during both morning and afternoon peak-hours.
- **Hilltop Road/CR 5/East Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both peak-hours through 2036.

- **Hilltop Road/Daley Circle:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2036.
- **Hilltop Road/Flintwood Road:** All movements at this unsignalized intersection are expected to operate at LOS “D” or better through 2025. By 2036, this intersection is expected to be signalized and such is expected to operate at LOS “B” during the morning peak-hour and LOS “A” during the afternoon peak-hour.
- **Hilltop Road/Middle Site Access:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2036.
- **Hilltop Road/West Site Access:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2036.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Trip Generation**

1. The site is projected to generate about 9,922 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 391 vehicles would enter and about 696 vehicles would exit the site. During the afternoon peak-hour, about 640 vehicles would enter and about 404 vehicles would exit.

### **Projected Levels of Service**

2. All movements at the intersections analyzed are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2036 with the recommended lane geometry and traffic control shown in Figure 10b with the following exceptions. The westbound right-turn lane from Singing Hills Road to Hilltop Road may need a free movement to operate at LOS “D” or better. The southbound approach of Flintwood Road to Singing Hills Road could operate at LOS “E” by 2036 but will not likely warrant a traffic signal.

### **Conclusions**

3. The impact of the Independence development site can be accommodated by the existing and proposed roadway network with the recommended improvements.

### **Recommendations**

4. Figure 9b shows the anticipated 2025 total traffic, lane geometry, and traffic control.
5. It is possible that Neighborhood 1, which is analyzed in the 2025 analyses, could include an initial phase of about 160 dwelling units. This will be about half of the impact of the full Neighborhood 1. The Phase 1 access to Hilltop Road should be constructed per Figure 9b.

6. Figure 10b shows the recommended 2036 total traffic, lane geometry, and traffic control to accommodate significant growth in background traffic.
7. The westbound right-turn movement from Singing Hills Road to Hilltop Road may need to be a free movement due to heavy turning volumes during the morning peak-hour in 2025 and 2036.
8. The auxiliary turn lanes at the various site access intersections should be designed based on the posted speed limit of the roadways. The westbound right-turn lanes on Hilltop Road approaching the three access points would be 320 feet plus a 180-foot transition taper for a 50 mph posted speed limit. The three eastbound left-turn lanes would have the same dimensions except the 320-foot dimension will increase to provide queuing distance. From the west access to the east access the additional lengths would be 35 feet, 25 feet, and 75 feet, respectively. Each of the three southbound site access approaches to Hilltop Road should have a 150-foot long dedicated right-turn lane and be stop-sign controlled.
9. Right-of-way dedication will likely be needed along the site frontage of Hilltop Road to provide the future 120-foot right-of-way referenced in the *West Elbert County Transportation Plan*.
10. Care should be taken to design fences, landscaping, monuments, etc. to not restrict sight distance at the various access points.

\* \* \* \* \*

We trust our findings will assist you in gaining approval of the proposed Independence development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By

Christopher S. McGranahan, PE, PTO  
Principal



12-16-16

CSM/wc

- Enclosures:
- Tables 1 and 2
  - Figures 1 - 10b
  - Traffic Count Reports
  - Level of Service Definitions
  - Level of Service Reports





**Table 1 (Page 2 of 4)**  
**Intersection Levels of Service Analysis**  
**Independence**  
**Elbert County, CO**  
**LSC #160800; December, 2016**

Intersection Location	Traffic Control	Existing Traffic		2025 Background Traffic		2025 Total Traffic		2036 Background Traffic		2036 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	Signalized										
EB Left		--	--	A	A	A	A	A	A	B	B
EB Through		--	--	A	B	A	B	A	B	B	B
EB Right		--	--	A	A	A	A	A	B	B	B
WB Left		--	--	A	A	A	B	A	B	B	B
WB Through		--	--	A	B	A	B	B	B	B	B
WB Right		--	--	A	A	A	A	A	A	B	A
NB Left		--	--	C	C	C	C	C	C	C	C
NB Through		--	--	C	C	C	C	C	C	C	C
NB Right		--	--	C	C	C	C	C	C	C	C
SB Left		--	--	D	C	D	C	D	C	D	C
SB Through		--	--	C	C	C	C	C	C	C	C
SB Right		--	--	C	C	C	C	D	C	D	C
Entire Intersection Delay (sec /veh)		--	--	11.0	16.5	11.4	16.8	16.4	18.7	20.7	22.2
Entire Intersection LOS		--	--	B	B	B	B	B	B	C	C
<u>Singing Hills Road/Madrid Drive</u>	TWSC										
NB Approach		B	C	C	D	C	D	--	--	--	--
NB Left/Through		--	--	--	--	--	--	C	D	C	D
NB Right		--	--	--	--	--	--	A	B	A	B
EB Left		A	A	A	A	A	A	A	A	A	A
WB Left		A	A	A	A	A	A	A	A	A	A
SB Approach		B	C	C	D	C	D	--	--	--	--
SB Left/Through		--	--	--	--	--	--	D	D	D	D
SB Right		--	--	--	--	--	--	B	A	B	A
Critical Movement Delay		14.5	17.0	19.6	34.8	19.6	34.8	25.8	31.4	27.4	34.3
<u>Singing Hills Road/Thunder Hills Road</u>	TWSC										
NB Approach		B	C	C	D	C	D	--	--	--	--
NB Left/Through		--	--	--	--	--	--	C	D	C	D
NB Right		--	--	--	--	--	--	A	B	A	B
EB Approach		A	A	A	A	A	A	--	--	--	--
EB Left		--	--	--	--	--	--	A	A	A	A
WB Approach		A	A	A	A	A	A	--	--	--	--
WB Left		--	--	--	--	--	--	A	A	A	A
SB Approach		B	B	C	C	C	C	--	--	--	--
SB Left/Through		--	--	--	--	--	--	C	C	C	C
SB Right		--	--	--	--	--	--	B	A	B	A
Critical Movement Delay		12.4	19.5	17.7	27.4	17.7	27.4	18.3	33.3	19.3	34.9

**Table 1 (Page 3 of 4)**  
**Intersection Levels of Service Analysis**  
**Independence**  
**Elbert County, CO**  
**LSC #160800; December, 2016**

Intersection Location	Traffic Control	Existing Traffic		2025 Background Traffic		2025 Total Traffic		2036 Background Traffic		2036 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<b>Singing Hills Road/CR 13</b>											
	AWSC										
NB Approach		A	A	--	--	--	--	--	--	--	--
NB Left		--	--	B	B	B	B	--	--	--	--
NB Through		--	--	A	B	B	B	--	--	--	--
NB Right		--	--	A	B	A	B	--	--	--	--
EB Left		A	A	B	B	B	B	--	--	--	--
EB Through/Right		A	B	--	--	--	--	--	--	--	--
EB Through		--	--	B	F	B	F	--	--	--	--
EB Right		--	--	A	A	A	A	--	--	--	--
WB Left		A	A	A	B	A	B	--	--	--	--
WB Through/Right		B	A	--	--	--	--	--	--	--	--
WB Through		--	--	D	B	D	B	--	--	--	--
WB Right		--	--	A	A	A	A	--	--	--	--
SB Approach		A	A	--	--	--	--	--	--	--	--
SB Left		--	--	B	B	B	B	--	--	--	--
SB Through		--	--	B	B	B	B	--	--	--	--
Critical Movement Delay		11.5	12.1	26.1	60.8	27.0	61.4	--	--	--	--
<b>Signalized</b>											
EB Left		--	--	--	--	--	--	B	A	B	A
EB Through		--	--	--	--	--	--	B	A	B	A
EB Right		--	--	--	--	--	--	A	A	A	A
WB Left		--	--	--	--	--	--	A	A	A	A
WB Through		--	--	--	--	--	--	B	A	B	A
WB Right		--	--	--	--	--	--	B	A	B	A
NB Left		--	--	--	--	--	--	B	C	B	C
NB Through		--	--	--	--	--	--	C	C	C	C
NB Right		--	--	--	--	--	--	C	C	C	C
SB Left/Through		--	--	--	--	--	--	C	C	C	C
SB Through		--	--	--	--	--	--	C	C	C	C
SB Right		--	--	--	--	--	--	C	C	C	C
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	16.0	11.2	17.1	12.5
Entire Intersection LOS		--	--	--	--	--	--	B	B	B	B
<b>Hilltop Road/CR 13</b>											
	TWSC										
NB Left		A	A	A	A	A	A	--	--	--	--
EB Approach		A	A	B	B	B	B	--	--	--	--
Critical Movement Delay		9.3	9.6	10.9	10.4	11.1	11.1	--	--	--	--
<b>Signalized</b>											
EB Left		--	--	--	--	--	--	D	C	D	C
EB Right		--	--	--	--	--	--	C	D	C	C
NB Left		--	--	--	--	--	--	A	A	A	A
NB Through		--	--	--	--	--	--	A	A	A	A
SB Through		--	--	--	--	--	--	A	A	B	B
SB Right		--	--	--	--	--	--	A	A	B	B
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	8.0	12.9	15.0	17.5
Entire Intersection LOS		--	--	--	--	--	--	A	B	B	B

**Table 1 (Page 4 of 4)**  
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**Independence**  
**Elbert County, CO**  
**LSC #160800; December, 2016**

Intersection Location	Traffic Control	Existing Traffic		2025 Background Traffic		2025 Total Traffic		2036 Background Traffic		2036 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<u>Hilltop Road/CR 5/East Site Access</u>											
	TWSC										
NB Approach		A	A	B	B	B	C	--	--	--	--
NB Left/Through		--	--	--	--	--	--	B	B	C	C
NB Right		--	--	--	--	--	--	A	A	A	A
EB Left		--	--	--	--	A	A	A	A	A	A
WB Approach		A	A	A	A	A	A	--	--	--	--
WB Left		--	--	--	--	--	--	A	A	A	A
SB Approach		--	--	B	B	--	--	--	--	--	--
SB Left/Through		--	--	--	--	B	B	B	B	C	C
SB Right		--	--	--	--	A	A	A	A	A	A
Critical Movement Delay		9.7	9.7	10.3	10.9	12.6	15.3	11.1	11.9	18.5	19.3
<u>Hilltop Road/Daley Circle</u>											
	TWSC										
NB Approach		A	A	A	B	B	B	A	B	B	B
WB Approach		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		9.8	9.8	9.4	10.0	10.2	11.6	9.4	10.0	10.0	10.5
<u>Hilltop Road/Flintwood Road</u>											
	TWSC										
WB Left		B	C	B	C	B	D	--	--	--	--
WB Right		B	A	B	A	B	A	--	--	--	--
SB Approach		A	A	A	A	A	A	--	--	--	--
Critical Movement Delay		11.0	15.6	11.9	18.1	14.1	29.4	--	--	--	--
	Signalized										
WB Left		--	--	--	--	--	--	C	D	C	D
WB Right		--	--	--	--	--	--	C	D	C	C
NB Through		--	--	--	--	--	--	A	A	B	A
NB Right		--	--	--	--	--	--	A	A	A	A
SB Left/Through		--	--	--	--	--	--	A	A	A	A
SB Through		--	--	--	--	--	--	A	A	A	A
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	14.5	5.8	17.1	8.2
Entire Intersection LOS		--	--	--	--	--	--	B	A	B	A
<u>Hilltop Road/Covote Trail/Middle Site Access</u>											
	TWSC										
NB Approach		--	--	A	A	B	B	--	--	--	--
NB Left		--	--	--	--	--	--	A	B	--	--
NB Left/Through		--	--	--	--	--	--	--	--	B	B
NB Right		--	--	--	--	--	--	A	A	A	A
EB Left		--	--	--	--	--	--	--	--	A	A
WB Left		--	--	A	A	A	A	A	A	A	A
SB Left/Through		--	--	--	--	--	--	--	--	B	B
SB Right		--	--	--	--	--	--	--	--	B	A
Critical Movement Delay		--	--	9.3	9.9	10.2	11.5	9.6	10.7	13.3	12.9
<u>Hilltop Road/West Site Access</u>											
EB Left		--	--	--	--	--	--	--	--	A	A
SB Left		--	--	--	--	--	--	--	--	B	B
SB Right		--	--	--	--	--	--	--	--	A	A
Critical Movement Delay		--	--	--	--	--	--	--	--	13.3	11.9

**Table 2  
ESTIMATED TRAFFIC GENERATION  
Independence  
Elbert County, CO  
LSC #160800; December, 2016**

Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>					Total Trips Generated					
		Average Weekday	AM Peak-Hour		PM Peak-Hour		Average Weekday	AM Peak-Hour		PM Peak-Hour		
			In	Out	In	Out		In	Out			
<b>Neighborhood 1</b>												
Single-Family Detached <sup>(2)</sup>	331 DU <sup>(3)</sup>	9.520	0.188	0.563	0.630	0.370	3,151	62	186	209	122	
<b>Neighborhood 2</b>												
Single-Family Detached	95 DU	9.520	0.188	0.563	0.630	0.370	904	18	53	60	35	
<b>Neighborhood 3</b>												
Single-Family Detached	140 DU	9.520	0.188	0.563	0.630	0.370	1,333	26	79	88	52	
<b>Neighborhood 4</b>												
Single-Family Detached	154 DU	9.520	0.188	0.563	0.630	0.370	1,466	29	87	97	57	
<b>Neighborhood 5</b>												
Single-Family Detached	80 DU	9.520	0.188	0.563	0.630	0.370	762	15	45	50	30	
<b>Neighborhood 6</b>												
Single-Family Detached	35 DU	9.520	0.188	0.563	0.630	0.370	333	7	20	22	13	
<b>Neighborhood 7</b>												
Single-Family Detached	25 DU	9.520	0.188	0.563	0.630	0.370	238	5	14	16	9	
<b>Neighborhood 8</b>												
Single-Family Detached	35 DU	9.520	0.188	0.563	0.630	0.370	333	7	20	22	13	
<b>Neighborhood 9</b>												
Single-Family Detached	20 DU	9.520	0.188	0.563	0.630	0.370	190	4	11	13	7	
<b>Neighborhood 10</b>												
Single-Family Detached	5 DU	9.520	0.188	0.563	0.630	0.370	48	1	3	3	2	
<b>Public K-8 School <sup>(4)</sup></b>	800 Students	1.455	0.272	0.223	0.076	0.079	1,164	218	178	61	63	
							<b>Total</b>	<b>9,922</b>	<b>391</b>	<b>696</b>	<b>640</b>	<b>404</b>

Notes:

(1) Source: *Trip Generation*, Institute of Transportation Engineers, 9th Edition, 2012.

(2) ITE Land Use No. 210 - Single-Family Detached Housing

(3) DU = Dwelling Units

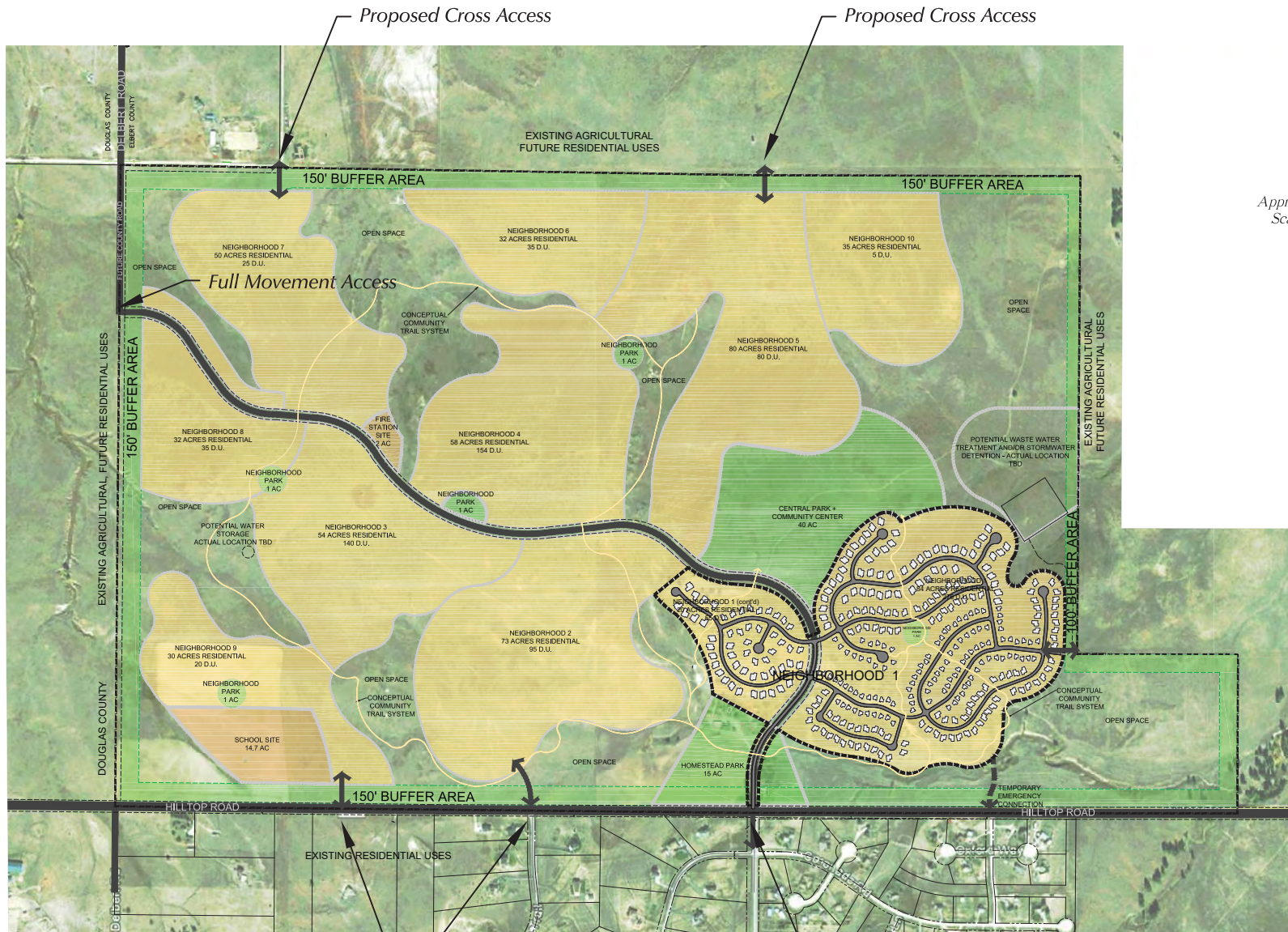
(4) ITE Land Use No. 520 Elementary School and No. 522 Middle School/Junior High School - the average of the two rates was used. Thirty percent of school trips are assumed to be internal to the site.



Approximate Scale  
Scale: 1" = 5,500'

Figure 1  
**Vicinity  
Map**

Independence (LSC #160800)



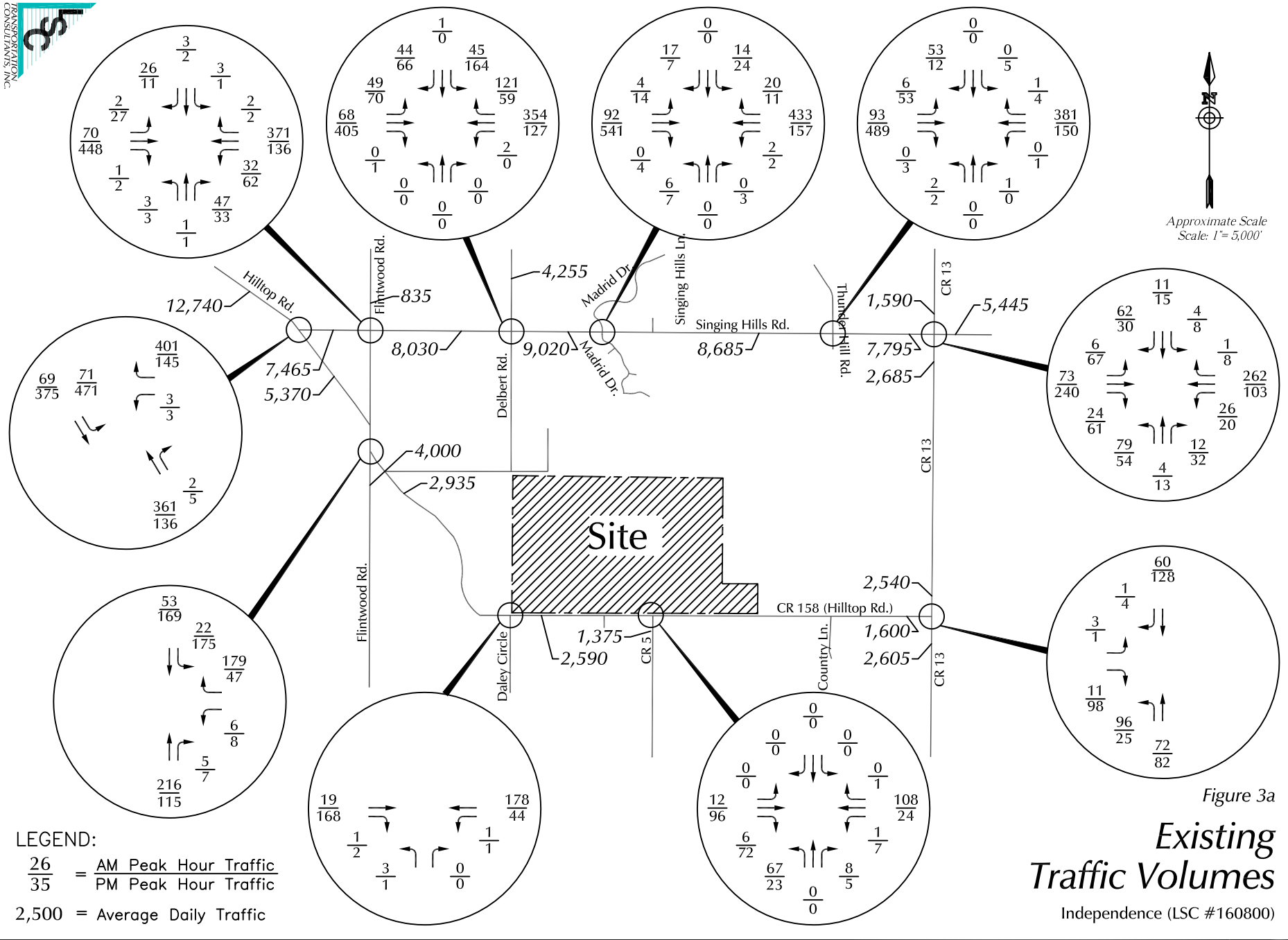
Approximate Scale  
Scale: NTS

Full Movement Access

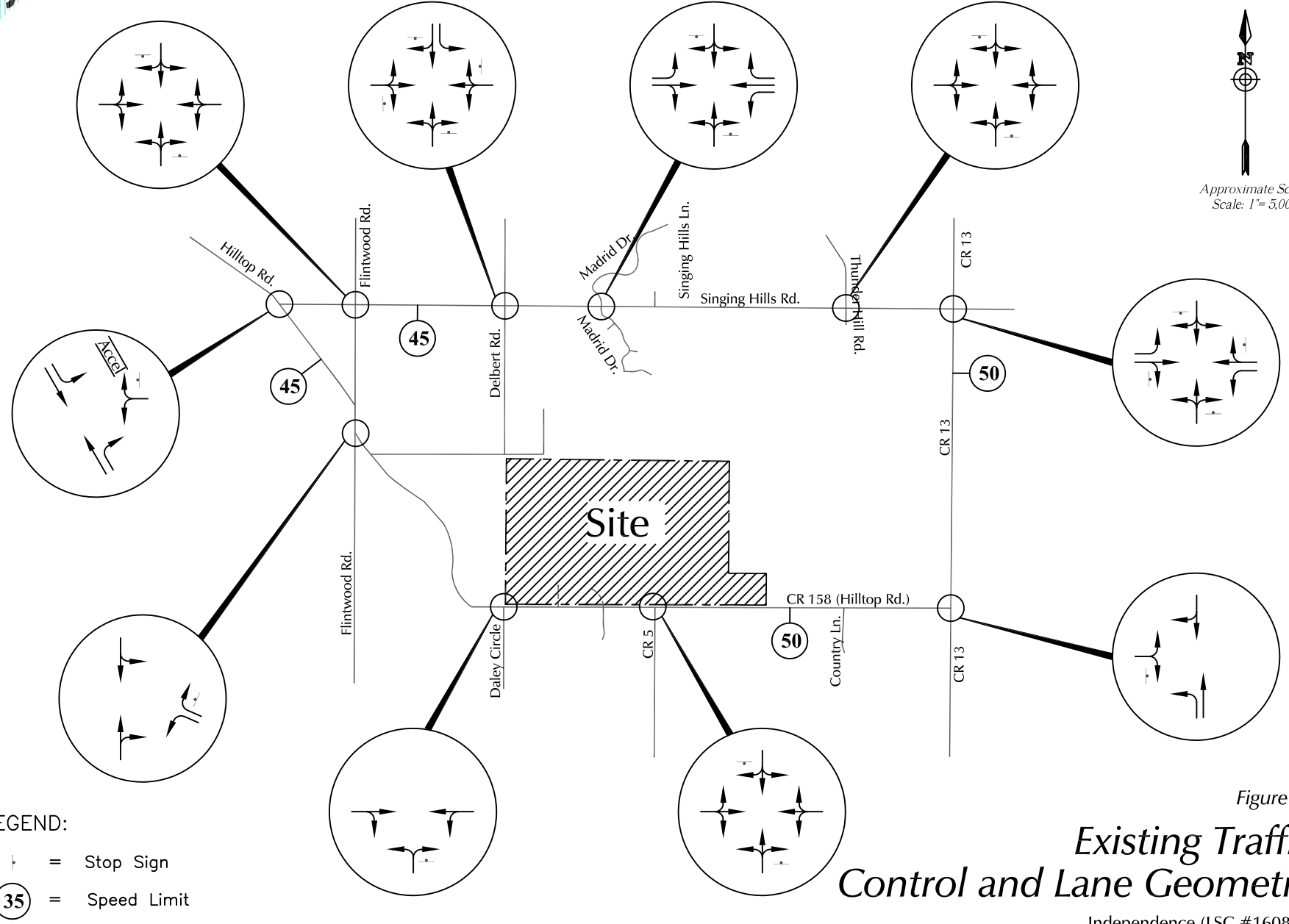
Full Movement Access

Figure 2  
**Site Plan**

Independence (LSC #160800)



Approximate Scale  
 Scale: 1" = 5,000'



Approximate Scale  
Scale: 1" = 5,000'

LEGEND:  
 ↓ = Stop Sign  
 (35) = Speed Limit

Figure 3b  
**Existing Traffic  
 Control and Lane Geometry**  
 Independence (LSC #160800)



Note: Based on accident data provided by the Elbert County Sheriffs Office from January, 2013 to October, 2016.



Approximate Scale  
Scale: 1" = 5,000'

LEGEND:

- ① = Property Damage Only
- ② = Property Damage, Injury
- ③ = Property Damage Only
- ④ = Property Damage Only
- ⑤ = Property Damage Only
- ⑥ = Property Damage Only
- ⑦ = Property Damage Only
- ⑧ = Property Damage Only
- ⑨ = Property Damage, Injury
- ⑩ = Property Damage Only
- ⑪ = Property Damage Only
- ⑫ = Property Damage, Injury
- ⑬ = Property Damage Only
- ⑭ = Property Damage Only
- ⑮ = Property Damage Only

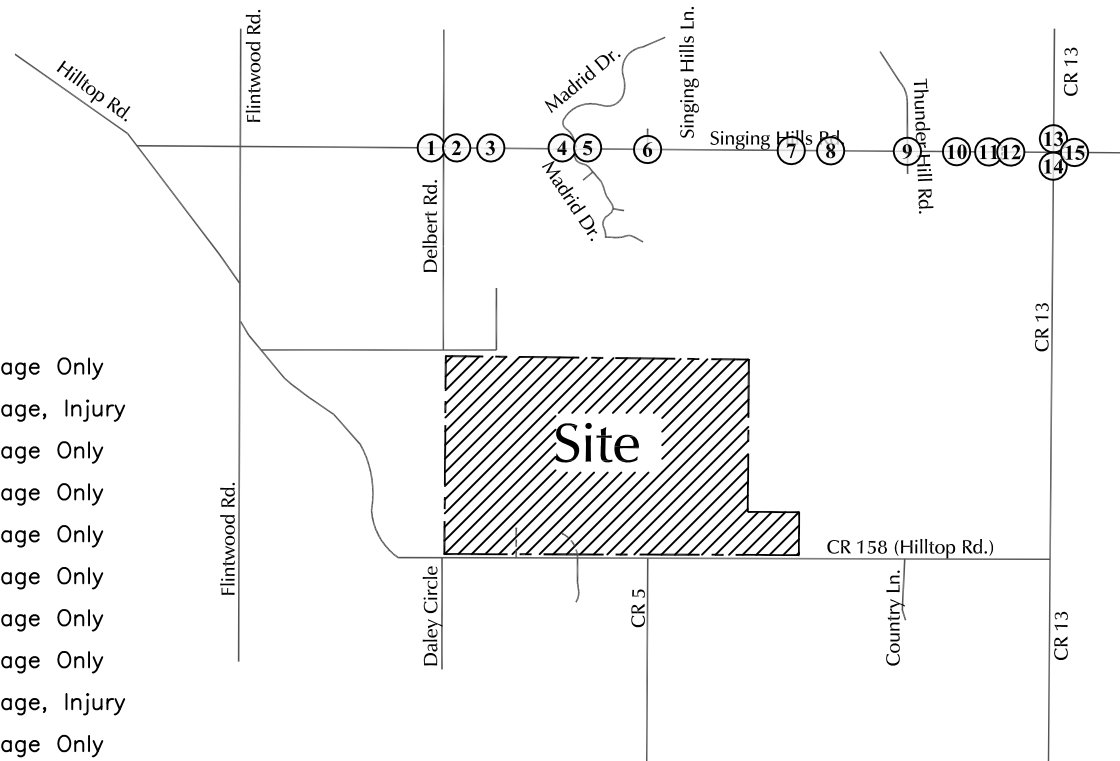
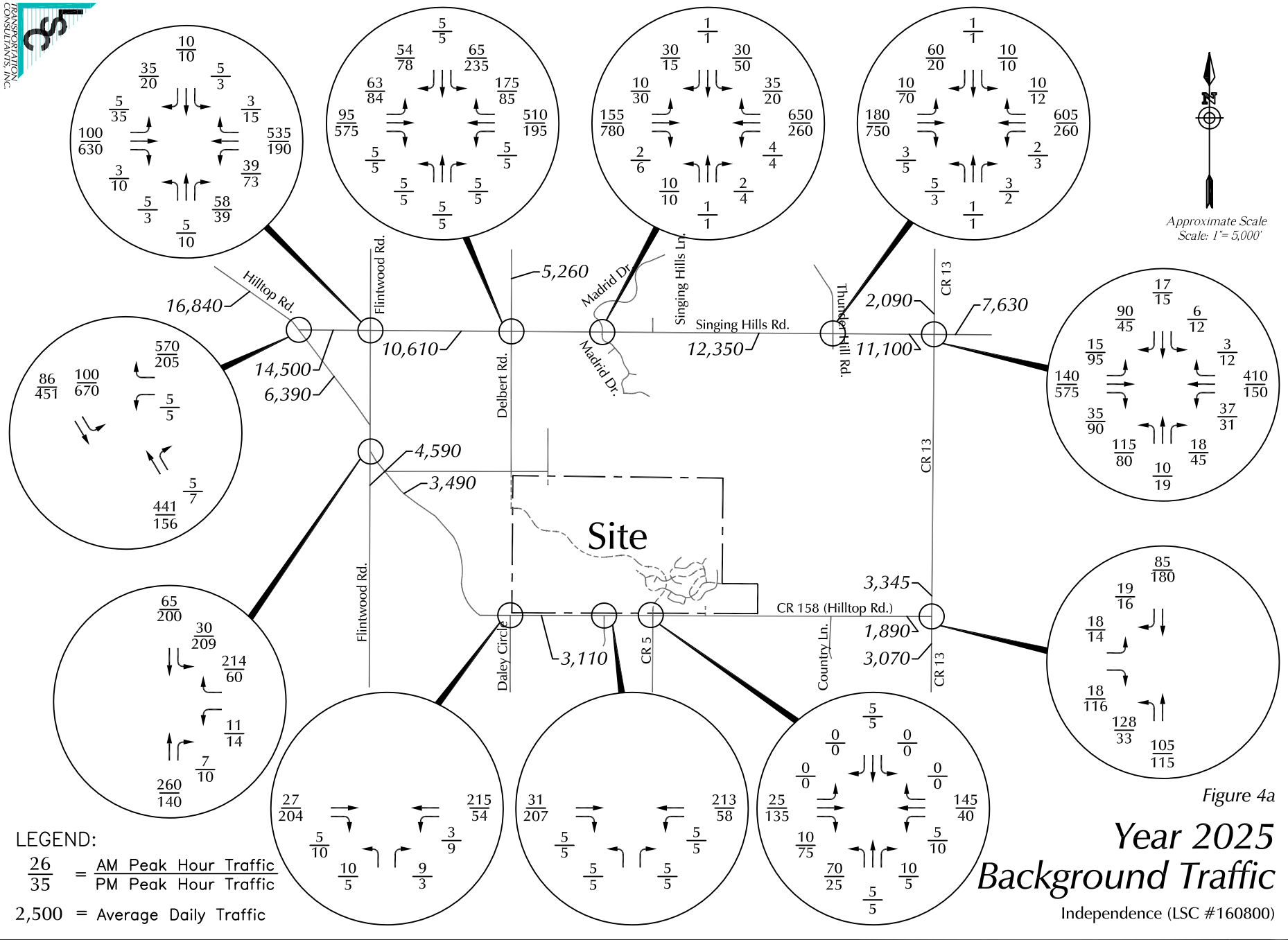
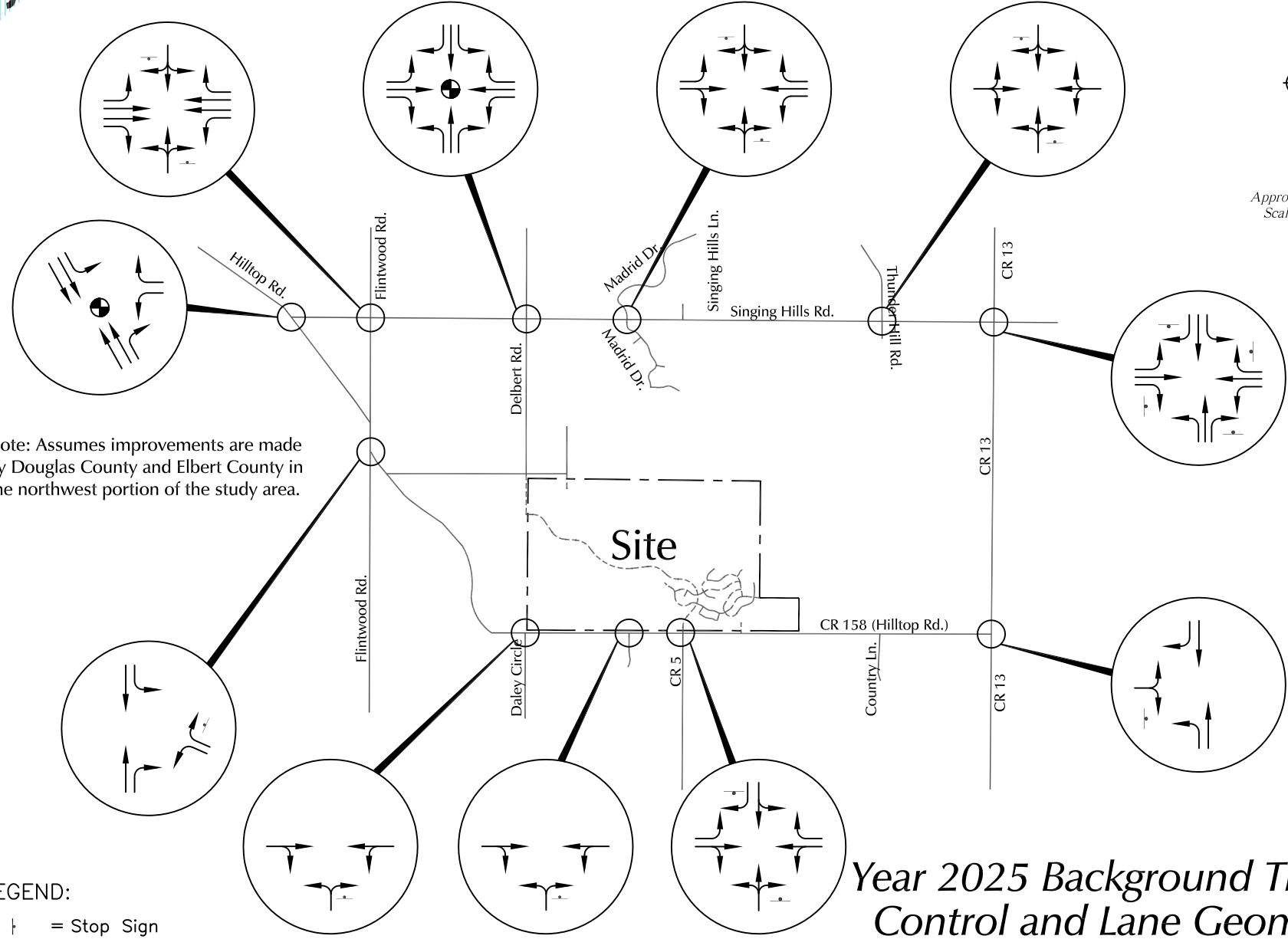


Figure 3c

# Summary of Accident History

Independence (LSC #160800)



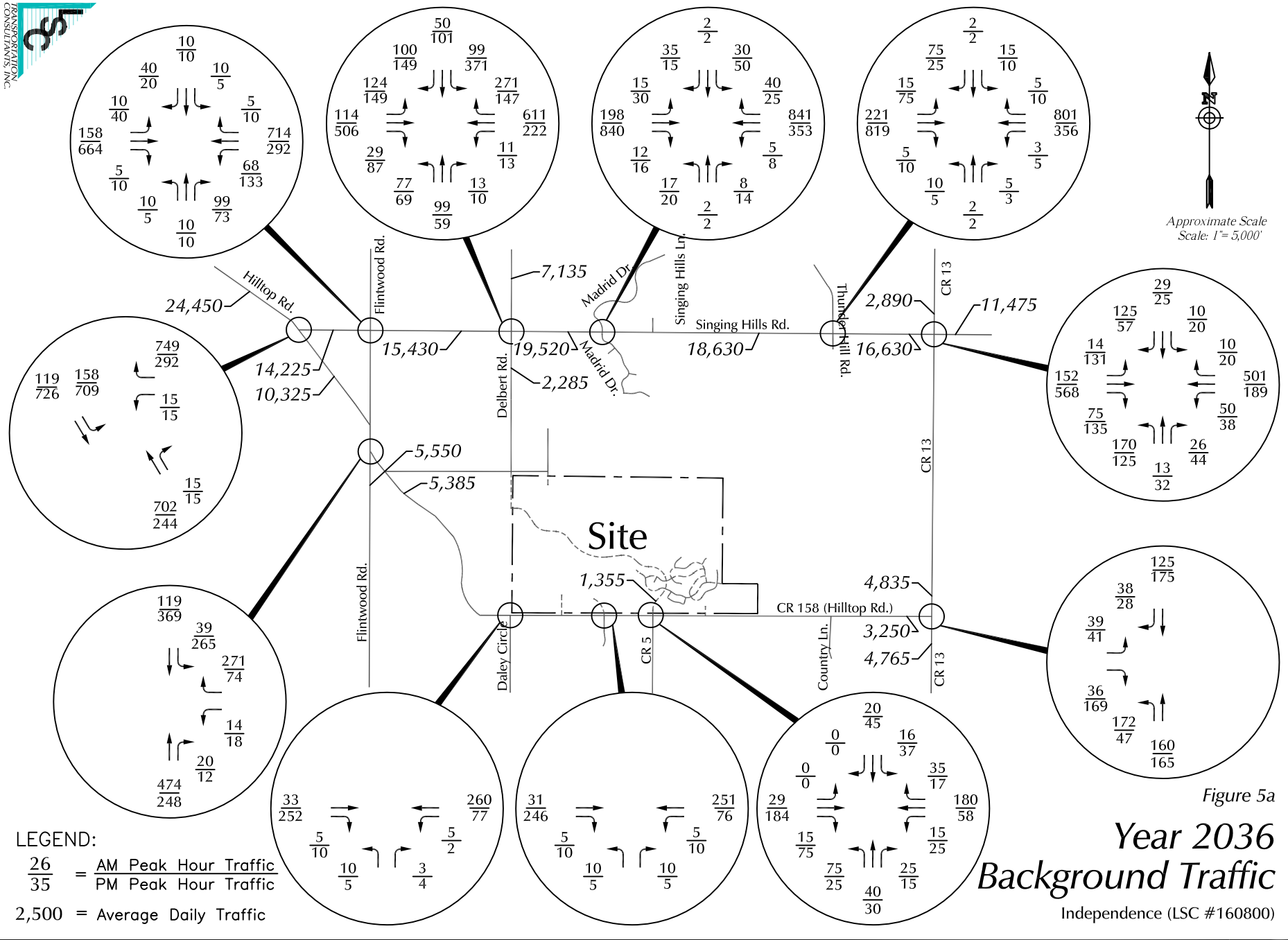


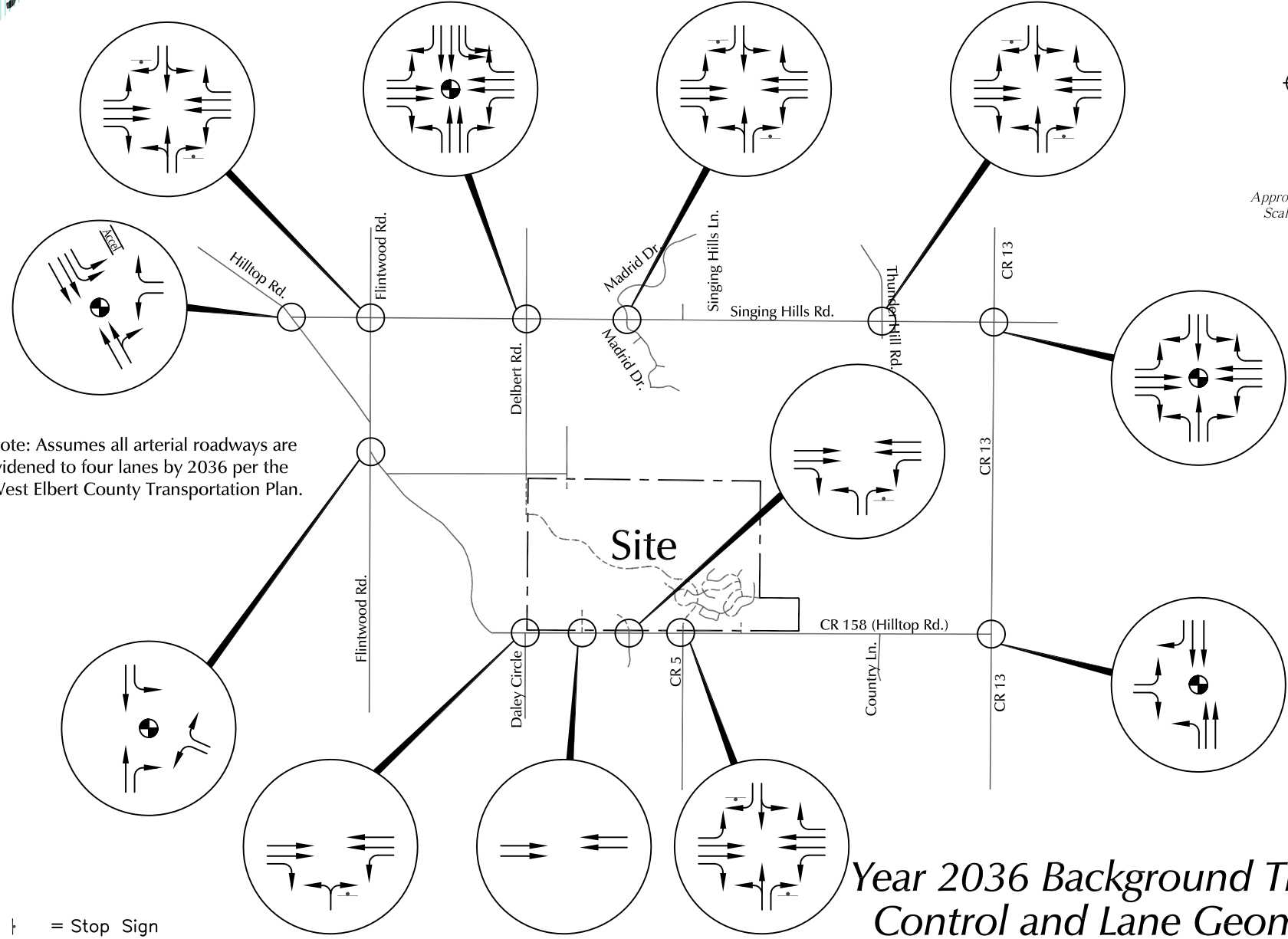
Note: Assumes improvements are made by Douglas County and Elbert County in the northwest portion of the study area.

LEGEND:  
 † = Stop Sign  
 ⊕ = Traffic Signal

Approximate Scale  
 Scale: 1" = 5,000'

Figure 4b  
**Year 2025 Background Traffic Control and Lane Geometry**  
 Independence (LSC #160800)





Note: Assumes all arterial roadways are widened to four lanes by 2036 per the West Elbert County Transportation Plan.

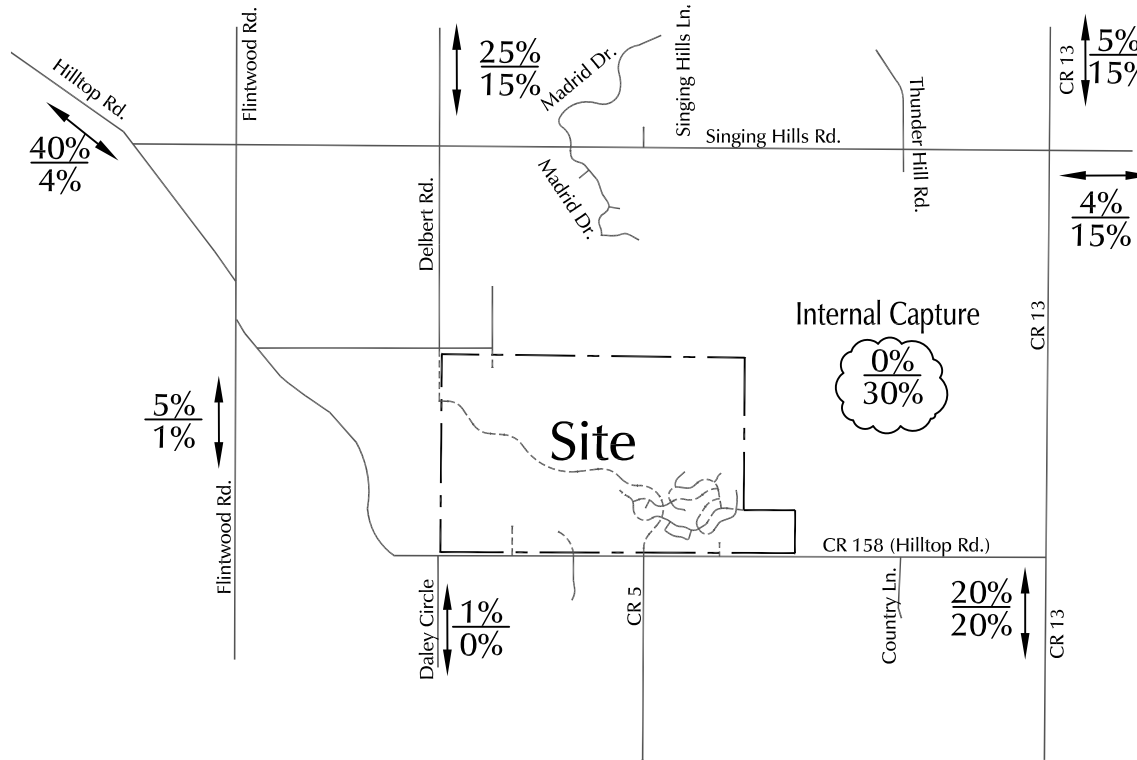
- ┆ = Stop Sign
- ⊙ = Traffic Signal

Approximate Scale  
Scale: 1" = 5,000'

Figure 5b  
**Year 2036 Background Traffic Control and Lane Geometry**  
Independence (LSC #160800)



Approximate Scale  
Scale: 1" = 5,000'



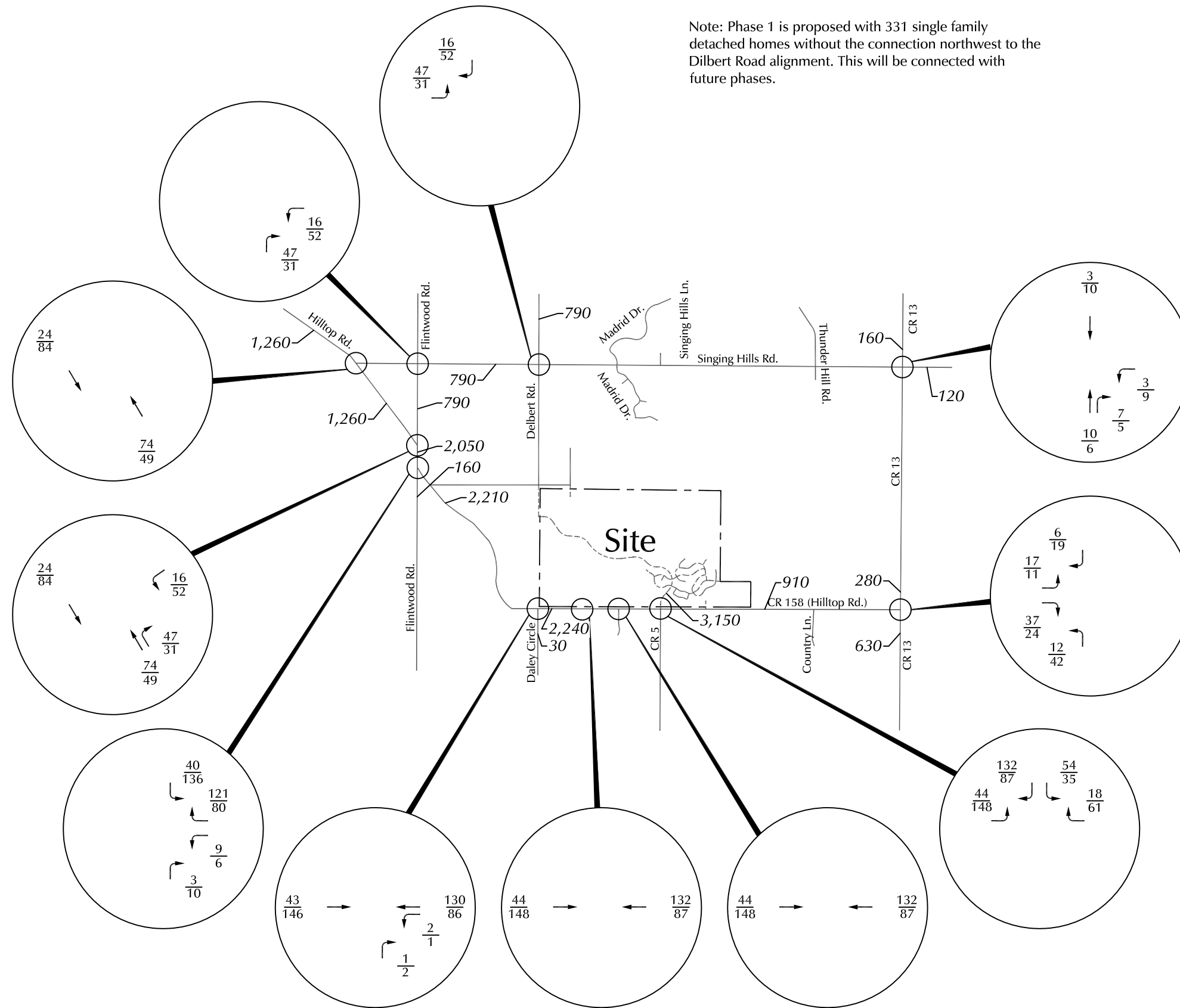
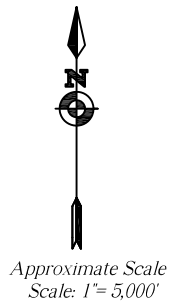
LEGEND:

$\frac{4\%}{5\%} = \frac{\text{Residential Distribution}}{\text{School Distribution}}$

## Figure 6 Directional Distribution of Site-Generated Traffic

Independence (LSC #160800)

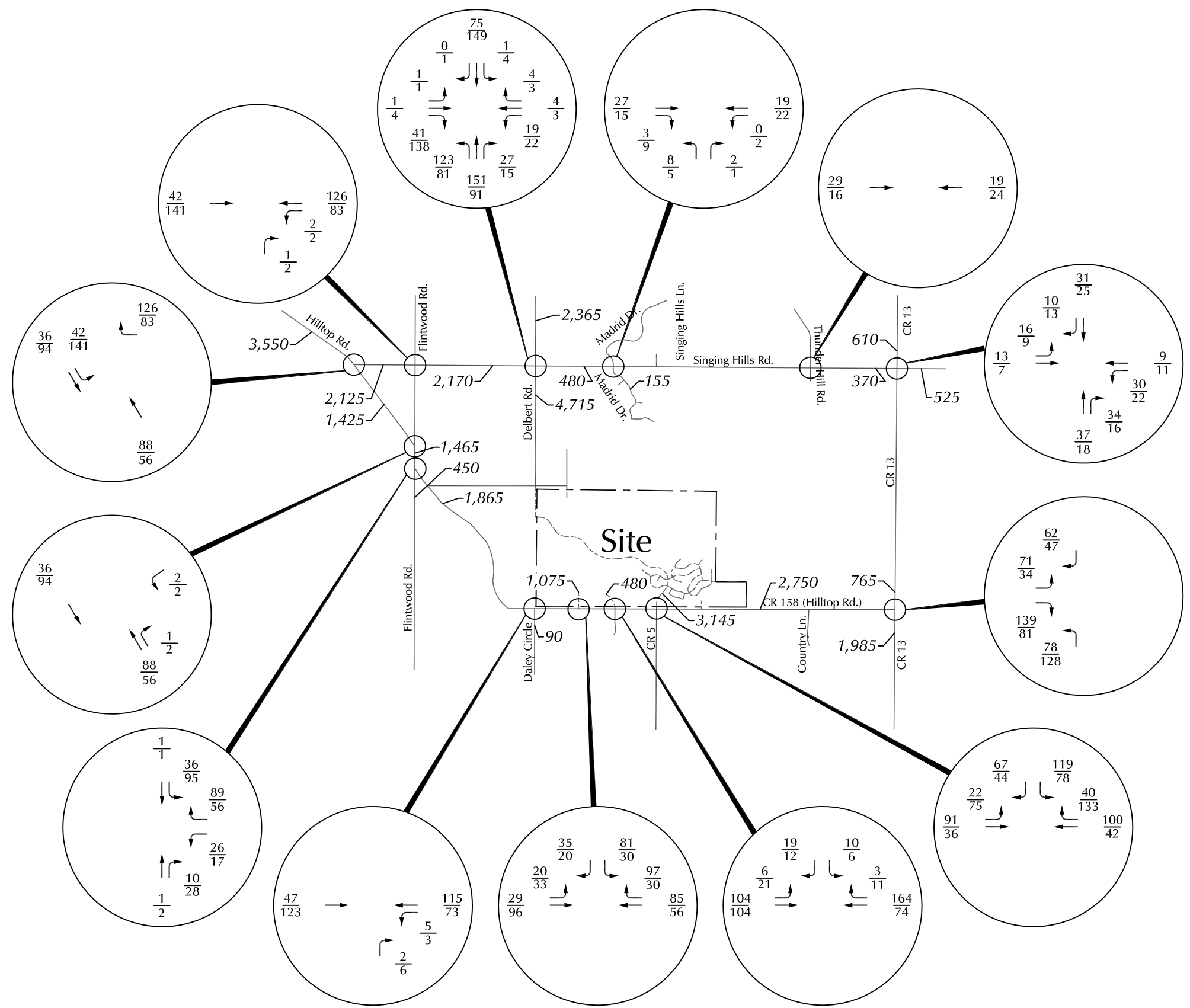
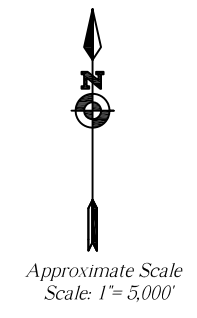
Note: Phase 1 is proposed with 331 single family detached homes without the connection northwest to the Dilbert Road alignment. This will be connected with future phases.



LEGEND:  
 $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic  
 2,500 = Average Daily Traffic



Figure 7  
**Assignment of  
 Neighborhood 1 Site-Generated Traffic**  
 Independence (LSC #160800)

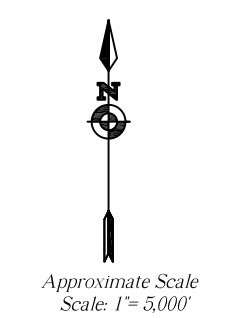
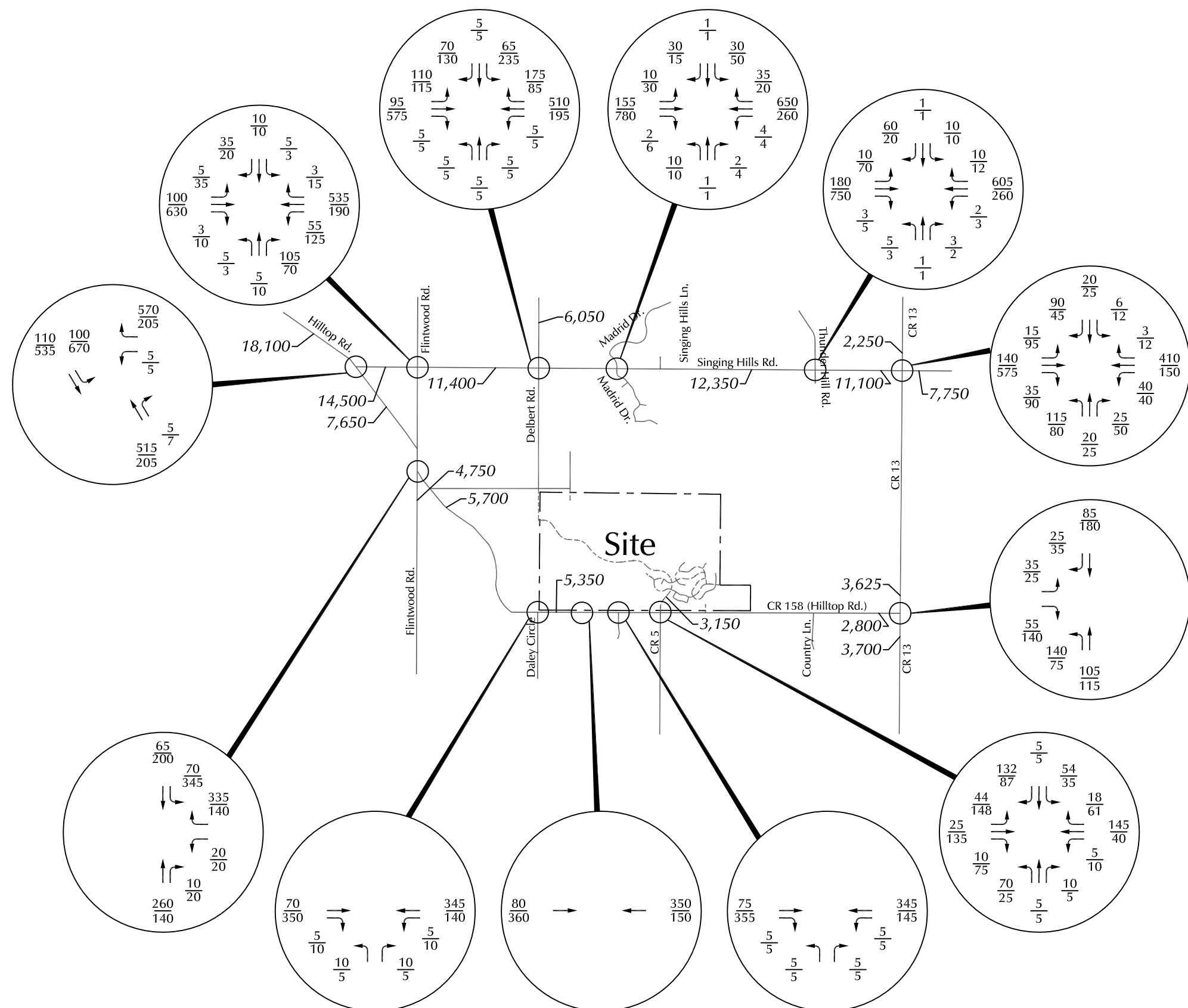


LEGEND:  
 $\frac{26}{35}$  = AM Peak Hour Traffic  
 $\frac{35}{26}$  = PM Peak Hour Traffic  
 2,500 = Average Daily Traffic



Figure 8  
**Assignment of  
 Build-Out Site-Generated Traffic**  
 Independence (LSC #160800)

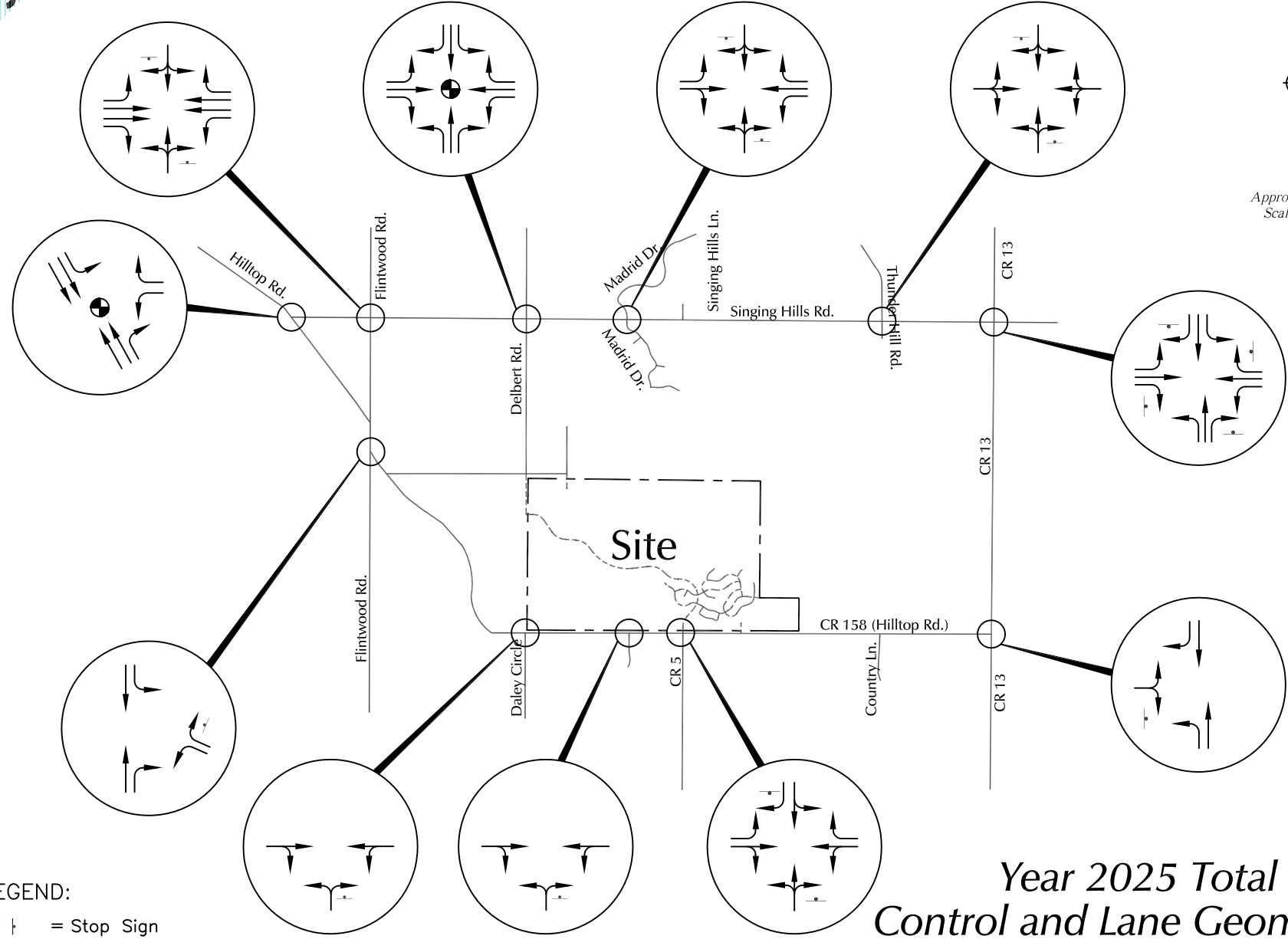




LEGEND:  
 $\frac{26}{35}$  = AM Peak Hour Traffic  
 $\frac{35}{26}$  = PM Peak Hour Traffic  
 2,500 = Average Daily Traffic



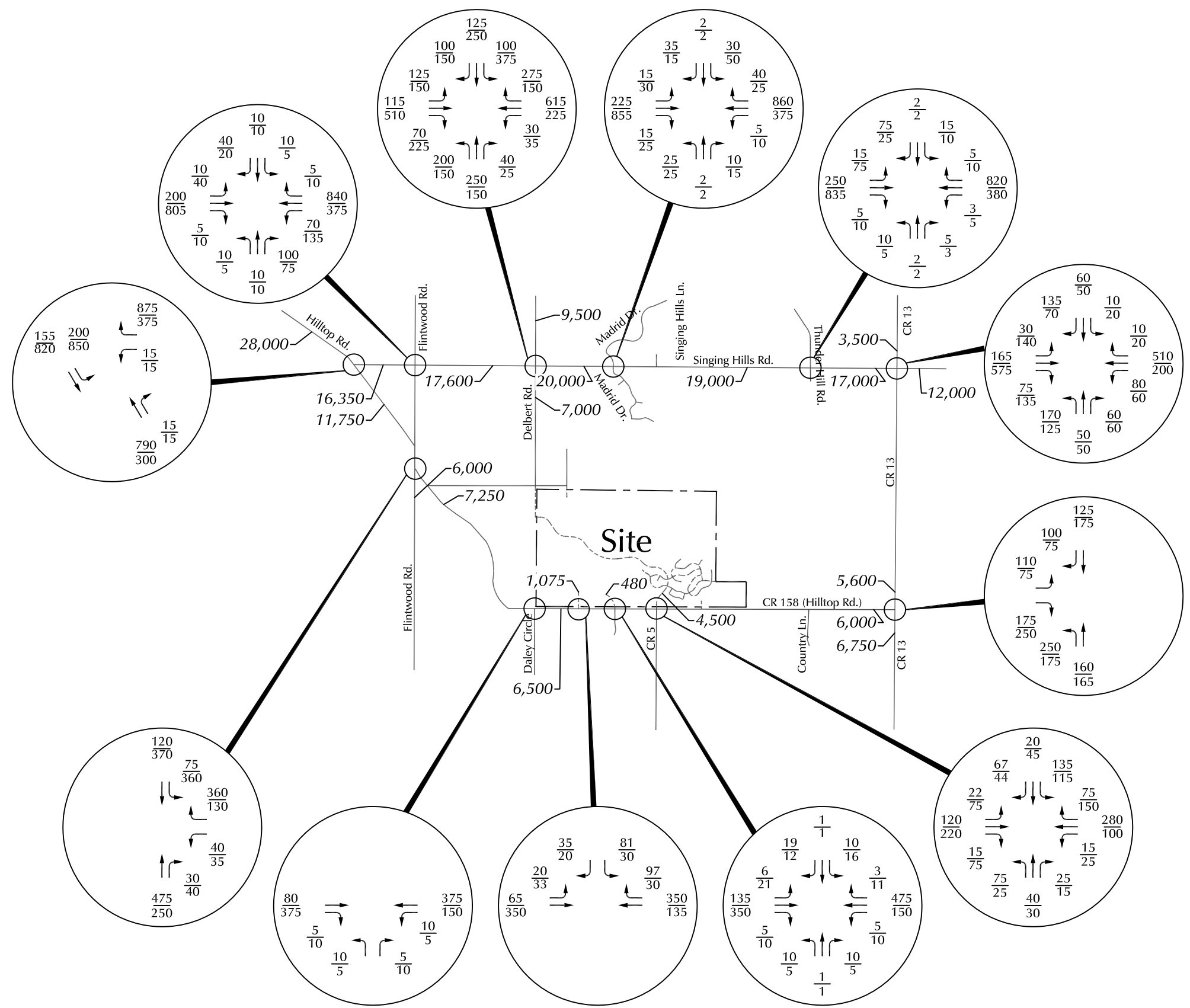
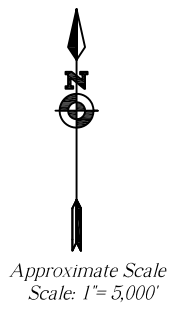
Figure 9a  
**Year 2025**  
**Total Traffic**  
 Independence (LSC #160800)



Approximate Scale  
Scale: 1" = 5,000'

LEGEND:  
 | = Stop Sign  
 ● = Traffic Signal

Figure 9b  
**Year 2025 Total Lane Control and Lane Geometry**  
 Independence (LSC #160800)



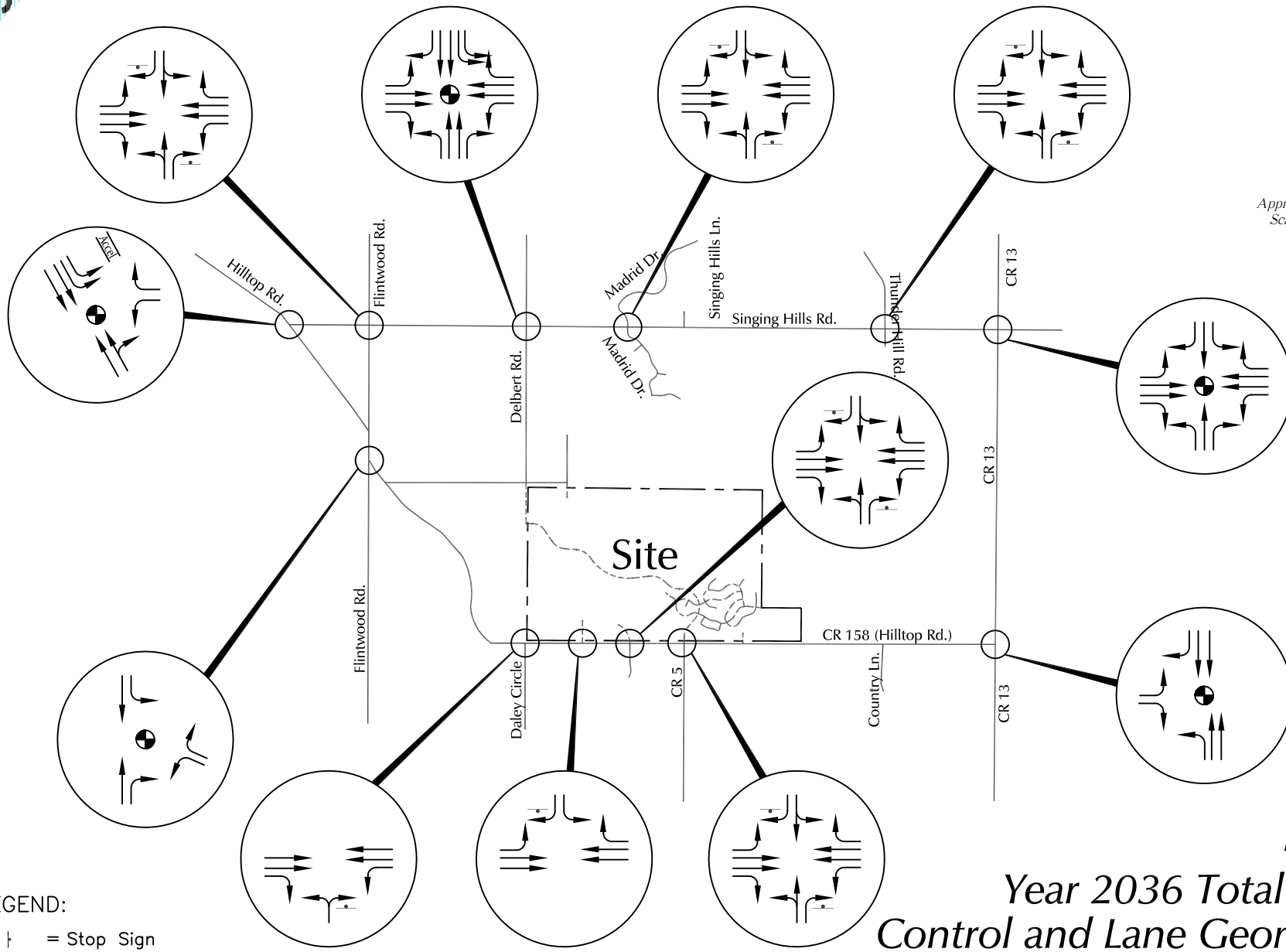
LEGEND:  
 $\frac{26}{35}$  = AM Peak Hour Traffic  
 $\frac{35}{35}$  = PM Peak Hour Traffic  
 2,500 = Average Daily Traffic

Figure 10a  
 Year 2036  
 Total Traffic  
 Independence (LSC #160800)





Approximate Scale  
Scale: 1" = 5,000'



LEGEND:

- ⊥ = Stop Sign
- = Traffic Signal

Figure 10b  
**Year 2036 Total Lane  
Control and Lane Geometry**

Independence (LSC #160800)

**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: HILLTOP RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : HILLSING  
Site Code : 00000016  
Start Date : 7/12/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	HILLTOP RD Southbound			SINGING HILLS RD Westbound			HILLTOP RD Northbound			Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	15	6	0	0	0	113	0	73	0	0	0	0	207
06:45 AM	17	13	0	1	0	93	0	93	0	0	0	0	217
Total	32	19	0	1	0	206	0	166	0	0	0	0	424
07:00 AM	20	15	0	0	0	85	0	97	0	0	0	0	217
07:15 AM	18	19	0	1	0	121	0	89	0	0	0	0	248
07:30 AM	16	22	0	1	0	102	0	82	2	0	0	0	225
07:45 AM	19	18	0	1	0	99	0	74	0	0	0	0	211
Total	73	74	0	3	0	407	0	342	2	0	0	0	901
08:00 AM	22	20	0	0	0	81	0	63	0	0	0	0	186
08:15 AM	23	16	0	0	0	80	0	63	3	0	0	0	185
Total	45	36	0	0	0	161	0	126	3	0	0	0	371
04:00 PM	103	44	0	0	0	39	0	34	0	0	0	0	220
04:15 PM	108	69	0	0	0	51	0	38	2	0	0	0	268
04:30 PM	102	75	0	1	0	52	0	45	2	0	0	0	277
04:45 PM	105	72	0	0	0	54	0	32	0	0	0	0	263
Total	418	260	0	1	0	196	0	149	4	0	0	0	1028
05:00 PM	110	103	0	0	0	31	0	32	3	0	0	0	279
05:15 PM	119	93	0	2	0	39	0	37	0	0	0	0	290
05:30 PM	130	89	0	0	0	45	0	35	1	0	0	0	300
05:45 PM	112	90	0	1	0	30	0	32	1	0	0	0	266
Total	471	375	0	3	0	145	0	136	5	0	0	0	1135
Grand Total	1039	764	0	8	0	1115	0	919	14	0	0	0	3859
Apprch %	57.6	42.4	0.0	0.7	0.0	99.3	0.0	98.5	1.5	0.0	0.0	0.0	
Total %	26.9	19.8	0.0	0.2	0.0	28.9	0.0	23.8	0.4	0.0	0.0	0.0	

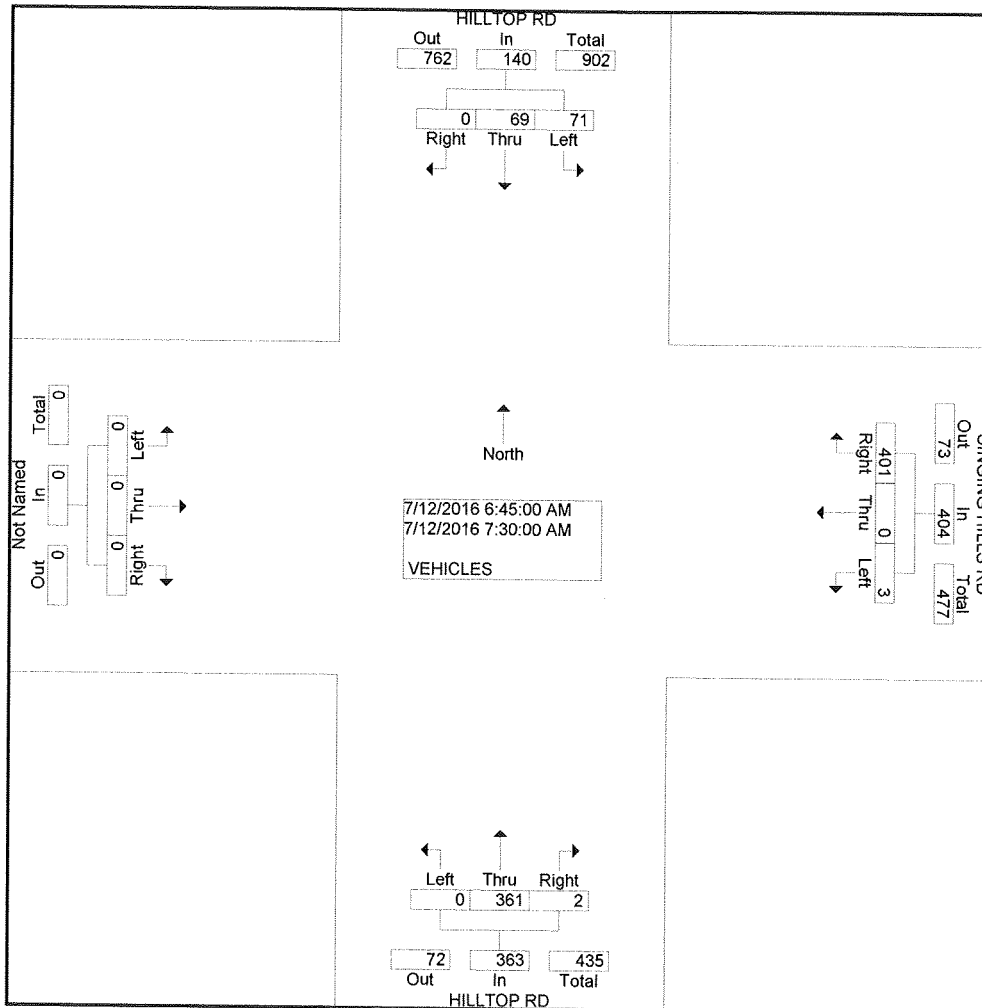
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: HILLTOP RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : HILLSING  
Site Code : 00000016  
Start Date : 7/12/2016  
Page No : 2

Start Time	HILLTOP RD Southbound				SINGING HILLS RD Westbound				HILLTOP RD Northbound				Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:30 AM to 08:30 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	71	69	0	140	3	0	401	404	0	361	2	363	0	0	0	0	907
Percent	50.7	49.3	0.0		0.7	0.0	99.3		0.0	99.4	0.6		0.0	0.0	0.0		
07:15																	
Volume	18	19	0	37	1	0	121	122	0	89	0	89	0	0	0	0	248
Peak Factor																	
High Int.	07:30 AM				07:15 AM				07:00 AM				6:15:00 AM				0.914
Volume	16	22	0	38	1	0	121	122	0	97	0	97					
Peak Factor	0.921								0.828				0.936				



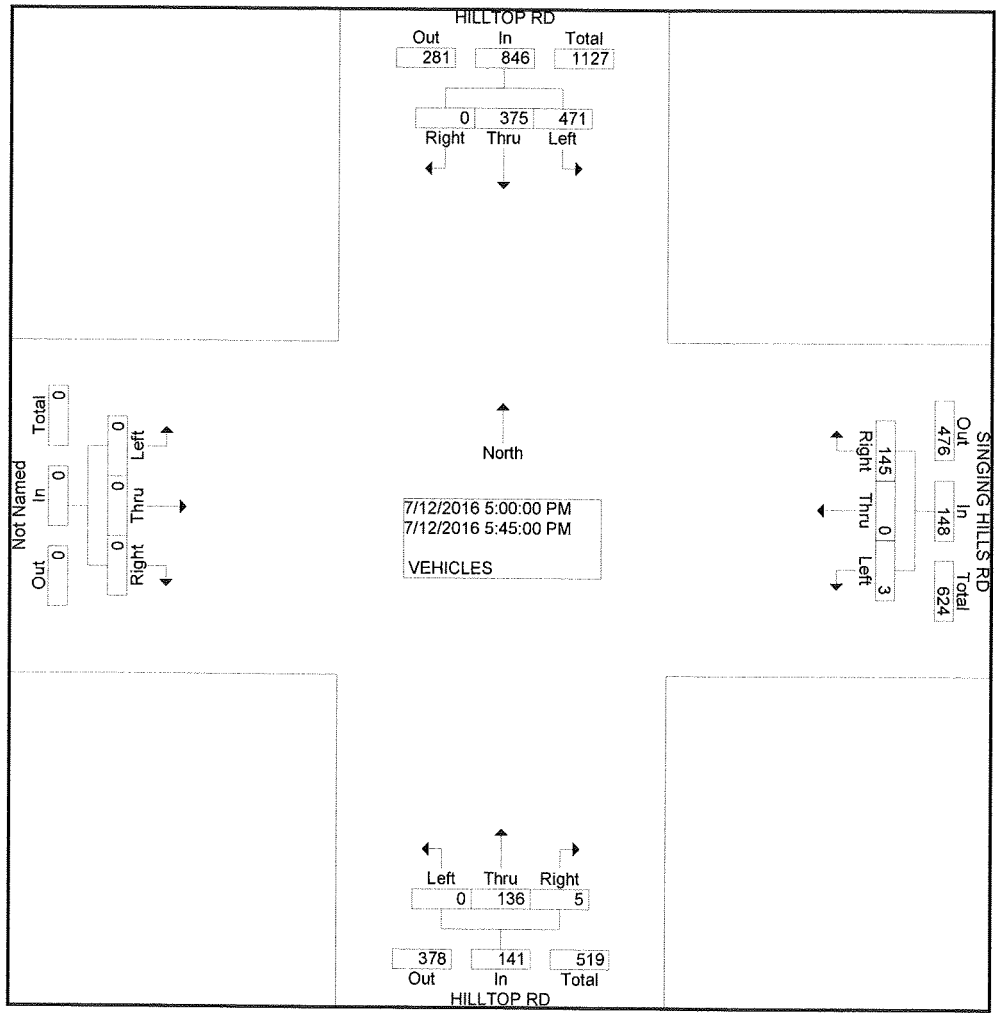
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: HILLTOP RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : HILLSING  
Site Code : 0000016  
Start Date : 7/12/2016  
Page No : 2

Start Time	HILLTOP RD Southbound				SINGING HILLS RD Westbound				HILLTOP RD Northbound				Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	471	375	0	846	3	0	145	148	0	136	5	141	0	0	0	0	1135
Percent	55.7	44.3	0.0		2.0	0.0	98.0		0.0	96.5	3.5		0.0	0.0	0.0		
05:30																	
Volume	130	89	0	219	0	0	45	45	0	35	1	36	0	0	0	0	300
Peak Factor																	
High Int.	05:30 PM				05:30 PM				05:15 PM								0.946
Volume	130	89	0	219	0	0	45	45	0	37	0	37					
Peak Factor	0.966				0.822				0.953								



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: FLINTWOOD RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : FLINSING  
Site Code : 0000013  
Start Date : 7/12/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	FLINTWOOD RD Southbound			SINGING HILLS RD Westbound			FLINTWOOD RD Northbound			SINGING HILLS RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	1	2	7	6	107	0	0	0	8	1	17	0	149
06:45 AM	1	1	8	7	86	1	1	1	15	1	15	0	137
Total	2	3	15	13	193	1	1	1	23	2	32	0	286
07:00 AM	2	0	6	7	72	0	1	0	20	1	20	1	130
07:15 AM	0	0	5	7	114	1	0	0	10	0	17	0	154
07:30 AM	0	2	7	11	99	0	1	0	2	0	18	0	140
07:45 AM	2	2	4	8	97	1	0	1	14	5	8	0	142
Total	4	4	22	33	382	2	2	1	46	6	63	1	566
08:00 AM	2	3	4	6	81	0	0	1	11	4	18	0	130
08:15 AM	0	1	7	11	76	2	0	2	12	4	20	0	135
Total	2	4	11	17	157	2	0	3	23	8	38	0	265
04:00 PM	0	2	6	10	31	1	1	1	16	2	91	1	162
04:15 PM	0	1	3	8	43	0	0	0	10	6	96	0	167
04:30 PM	0	0	5	8	41	2	0	1	8	14	88	0	167
04:45 PM	2	0	10	11	41	2	0	1	15	11	97	1	191
Total	2	3	24	37	156	5	1	3	49	33	372	2	687
05:00 PM	1	1	5	14	27	2	0	1	11	8	98	1	169
05:15 PM	0	1	2	17	40	0	0	0	2	6	118	1	187
05:30 PM	0	0	2	17	42	0	1	0	14	7	126	0	209
05:45 PM	0	0	2	14	27	0	2	0	6	6	106	0	163
Total	1	2	11	62	136	2	3	1	33	27	448	2	728
Grand Total	11	16	83	162	1024	12	7	9	174	76	953	5	2532
Apprch %	10.0	14.5	75.5	13.5	85.5	1.0	3.7	4.7	91.6	7.4	92.2	0.5	
Total %	0.4	0.6	3.3	6.4	40.4	0.5	0.3	0.4	6.9	3.0	37.6	0.2	



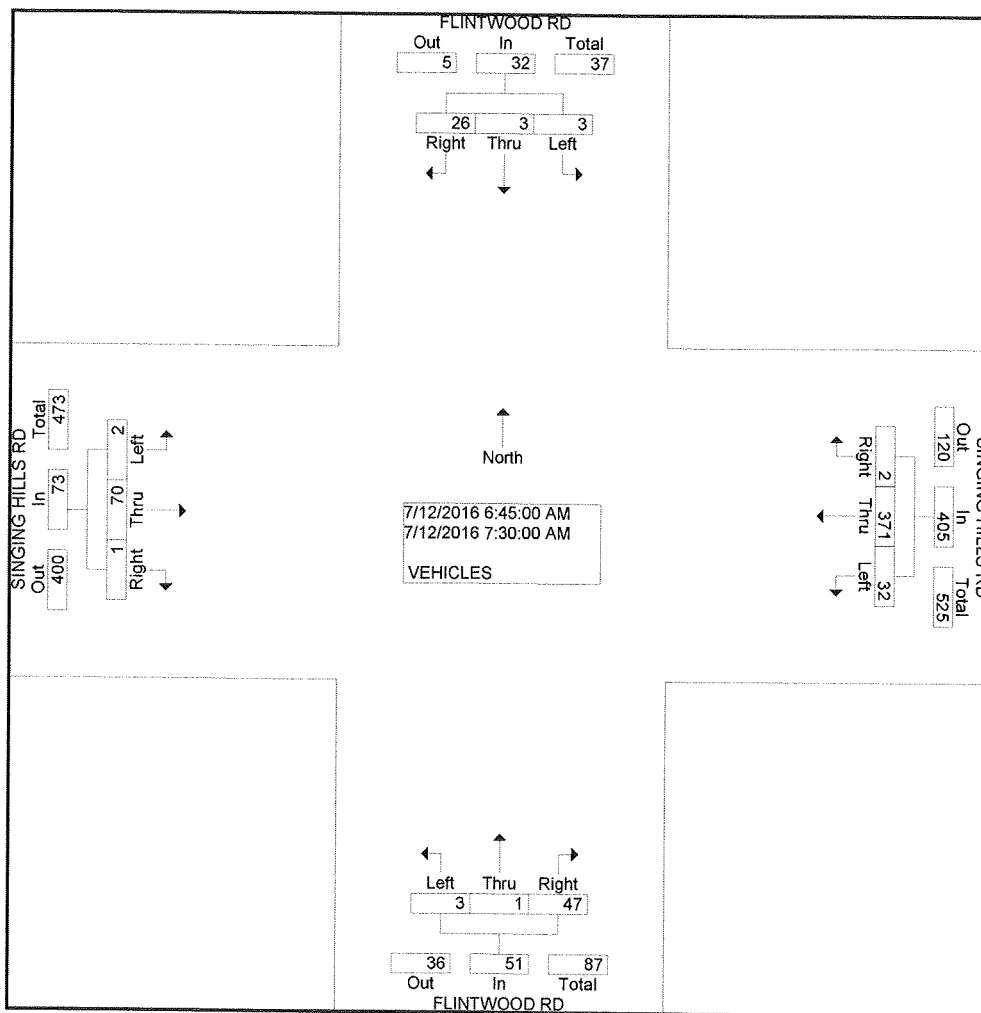
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: FLINTWOOD RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : FLINSING  
Site Code : 00000013  
Start Date : 7/12/2016  
Page No : 2

Start Time	FLINTWOOD RD Southbound				SINGING HILLS RD Westbound				FLINTWOOD RD Northbound				SINGING HILLS RD Eastbound				Int. Total			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total				
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																				
Intersection 06:45 AM																				
Volume	3	3	26	32	32	371	2	405	3	1	47	51	2	70	1	73	561			
Percent	9.4	9.4	81.3		7.9	91.6	0.5		5.9	2.0	92.2		2.7	95.9	1.4					
07:15																				
Volume	0	0	5	5	7	114	1	122	0	0	10	10	0	17	0	17	154			
Peak Factor																	0.911			
High Int. 06:45 AM																				
Volume	1	1	8	10	07:15 AM				07:00 AM				07:00 AM							
Peak Factor	0.800								0.830				0.607				0.830			



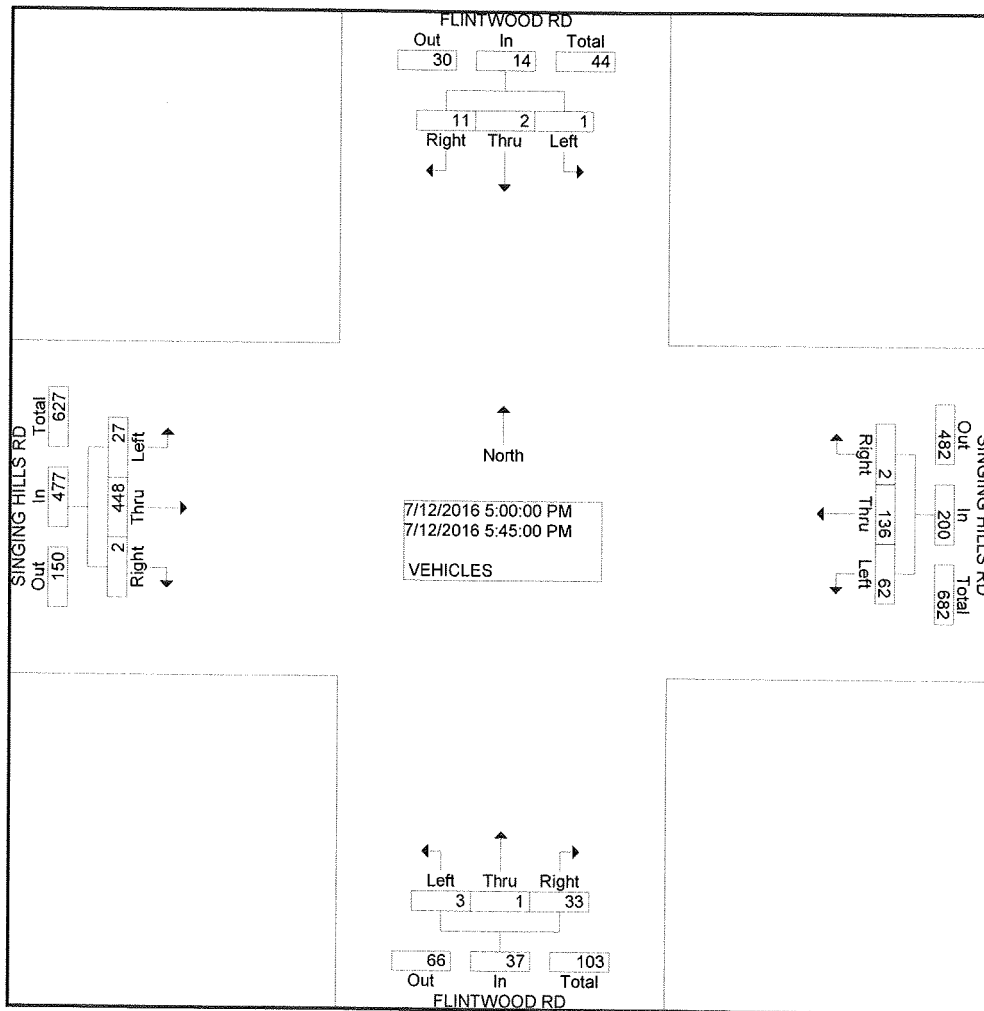
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: FLINTWOOD RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : FLINSING  
Site Code : 00000013  
Start Date : 7/12/2016  
Page No : 2

Start Time	FLINTWOOD RD Southbound				SINGING HILLS RD Westbound				FLINTWOOD RD Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	1	2	11	14	62	136	2	200	3	1	33	37	27	448	2	477	728
Percent	7.1	14.3	78.6		31.0	68.0	1.0		8.1	2.7	89.2		5.7	93.9	0.4		
05:30																	
Volume	0	0	2	2	17	42	0	59	1	0	14	15	7	126	0	133	209
Peak Factor	0.871																
High Int.	05:00 PM																
Volume	1	1	5	7	17	42	0	59	1	0	14	15	7	126	0	133	
Peak Factor	0.500				0.847				0.617				0.897				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: DELBERT RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : DELBSING  
Site Code : 00000011  
Start Date : 7/12/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	DELBERT RD Southbound			SINGING HILLS RD Westbound			DELBERT RD Northbound			SINGING HILLS RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	5	0	9	0	98	30	0	0	0	8	18	0	168
06:45 AM	7	0	8	0	83	27	0	0	0	12	18	0	155
Total	12	0	17	0	181	57	0	0	0	20	36	0	323
07:00 AM	10	0	9	0	75	33	0	0	0	25	18	0	170
07:15 AM	12	0	11	1	106	39	0	0	0	10	18	0	197
07:30 AM	16	1	16	1	90	22	0	0	0	2	14	0	162
07:45 AM	20	0	21	0	87	30	1	0	0	9	21	0	189
Total	58	1	57	2	358	124	1	0	0	46	71	0	718
08:00 AM	20	0	15	0	76	12	0	0	0	11	18	1	153
08:15 AM	13	0	13	0	74	20	0	0	0	13	21	0	154
Total	33	0	28	0	150	32	0	0	0	24	39	1	307
04:00 PM	22	0	12	0	31	23	0	0	0	22	96	0	206
04:15 PM	33	0	7	0	49	25	0	0	0	12	86	1	213
04:30 PM	36	0	10	0	42	22	1	0	0	23	81	0	215
04:45 PM	41	0	19	0	35	15	0	0	0	12	94	0	216
Total	132	0	48	0	157	85	1	0	0	69	357	1	850
05:00 PM	47	0	16	0	28	19	0	0	0	23	88	0	221
05:15 PM	38	0	15	0	35	14	0	0	0	9	99	0	210
05:30 PM	40	0	20	0	37	14	0	0	0	22	124	1	258
05:45 PM	39	0	15	0	27	12	0	0	0	16	94	0	203
Total	164	0	66	0	127	59	0	0	0	70	405	1	892
Grand Total	399	1	216	2	973	357	2	0	0	229	908	3	3090
Apprch %	64.8	0.2	35.1	0.2	73.0	26.8	100.0	0.0	0.0	20.1	79.6	0.3	
Total %	12.9	0.0	7.0	0.1	31.5	11.6	0.1	0.0	0.0	7.4	29.4	0.1	

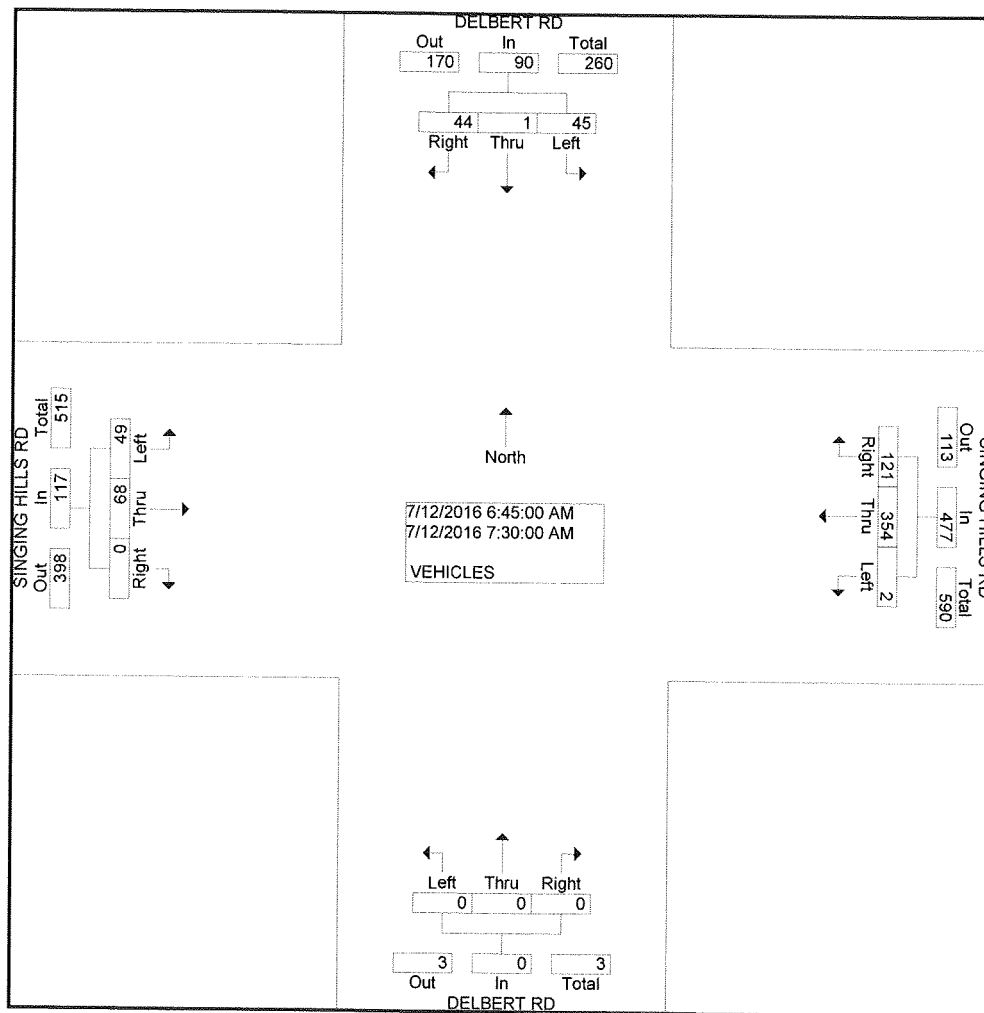
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: DELBERT RD  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : DELBSING  
Site Code : 0000011  
Start Date : 7/12/2016  
Page No : 2

Start Time	DELBERT RD Southbound				SINGING HILLS RD Westbound				DELBERT RD Northbound				SINGING HILLS RD Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																		
Intersection	06:45 AM																	
Volume	45	1	44	90	2	354	121	477	0	0	0	0	49	68	0	117	684	
Percent	50.0	1.1	48.9		0.4	74.2	25.4		0.0	0.0	0.0		41.9	58.1	0.0			
07:15																		
Volume	12	0	11	23	1	106	39	146	0	0	0	0	10	18	0	28	197	
Peak Factor																		
High Int.	0.868																	
07:30 AM																		
Volume	16	1	16	33	1	106	39	146	0	0	0	0	25	18	0	43		
Peak Factor	0.682								0.817								0.680	





**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: MADRID DR  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : MADRSING  
Site Code : 00000010  
Start Date : 7/12/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	MADRID DR Southbound			SINGING HILLS RD Westbound			MADRID DR Northbound			SINGING HILLS RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	1	0	7	0	114	6	2	0	0	1	22	0	153
06:45 AM	2	0	1	0	99	5	0	0	0	1	21	0	129
Total	3	0	8	0	213	11	2	0	0	2	43	0	282
07:00 AM	2	0	5	0	102	6	3	0	0	1	23	0	142
07:15 AM	6	0	5	0	127	4	1	0	0	1	23	0	167
07:30 AM	4	0	6	2	105	5	2	0	0	1	25	0	150
07:45 AM	2	1	3	0	110	4	0	0	1	1	39	1	162
Total	14	1	19	2	444	19	6	0	1	4	110	1	621
08:00 AM	4	2	5	0	82	8	0	1	1	4	31	0	138
08:15 AM	1	0	5	0	85	6	2	0	1	0	28	2	130
Total	5	2	10	0	167	14	2	1	2	4	59	2	268
04:00 PM	3	0	3	0	53	4	2	0	0	3	106	2	176
04:15 PM	5	0	3	0	66	6	3	0	0	2	112	2	199
04:30 PM	7	1	4	3	45	6	2	0	0	4	103	2	177
04:45 PM	9	0	4	0	42	6	0	0	0	2	113	4	180
Total	24	1	14	3	206	22	7	0	0	11	434	10	732
05:00 PM	5	0	1	0	38	3	0	0	0	2	132	2	183
05:15 PM	7	0	1	0	43	3	1	0	1	3	125	0	184
05:30 PM	4	0	4	1	44	2	2	0	1	3	156	1	218
05:45 PM	8	0	1	1	32	3	4	0	1	6	128	1	185
Total	24	0	7	2	157	11	7	0	3	14	541	4	770
Grand Total	70	4	58	7	1187	77	24	1	6	35	1187	17	2673
Apprch %	53.0	3.0	43.9	0.6	93.4	6.1	77.4	3.2	19.4	2.8	95.8	1.4	
Total %	2.6	0.1	2.2	0.3	44.4	2.9	0.9	0.0	0.2	1.3	44.4	0.6	

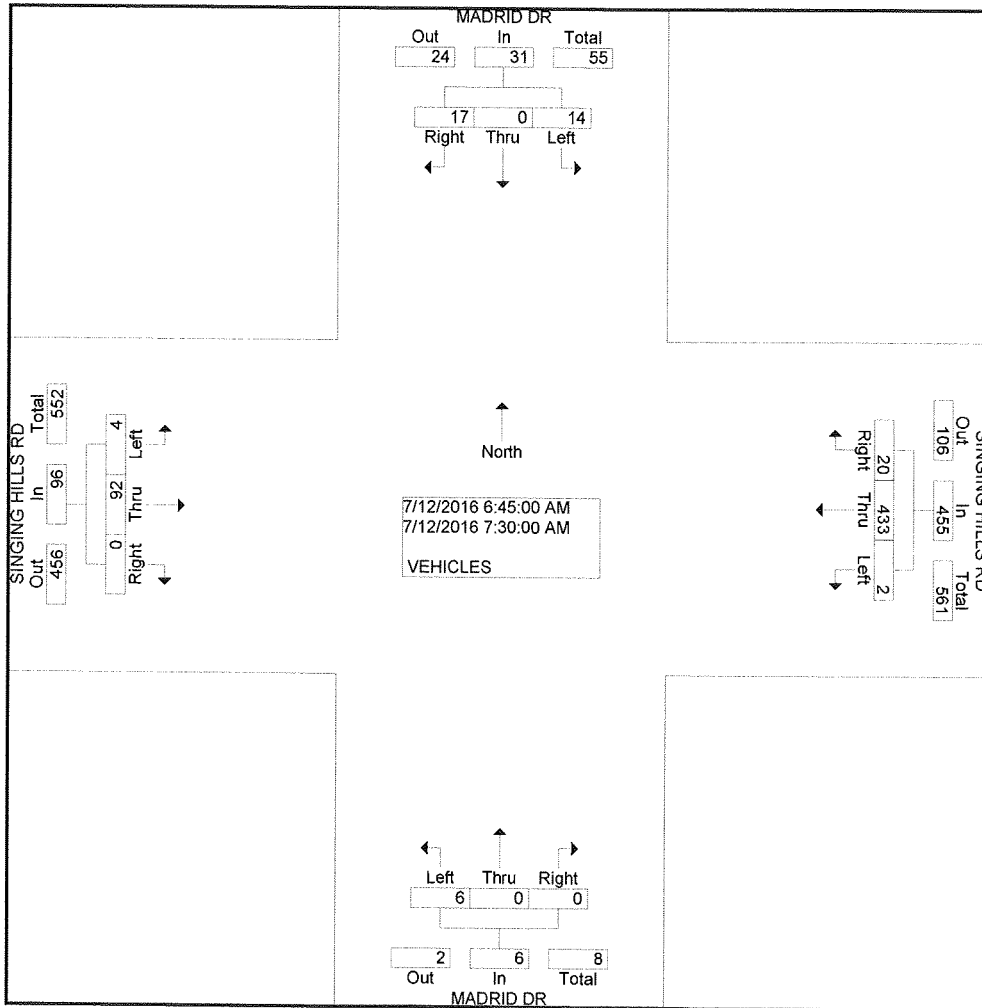
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: MADRID DR  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : MADRSING  
Site Code : 0000010  
Start Date : 7/12/2016  
Page No : 2

Start Time	MADRID DR Southbound				SINGING HILLS RD Westbound				MADRID DR Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	14	0	17	31	2	433	20	455	6	0	0	6	4	92	0	96	588
Percent	45.2	0.0	54.8		0.4	95.2	4.4		100.0	0.0	0.0		4.2	95.8	0.0		
07:15 Volume	6	0	5	11	0	127	4	131	1	0	0	1	1	23	0	24	167
Peak Factor	0.880																
High Int. Volume	07:15 AM				07:15 AM				07:00 AM				07:30 AM				
Volume	6	0	5	11	0	127	4	131	3	0	0	3	1	25	0	26	
Peak Factor	0.705				0.868				0.500				0.923				



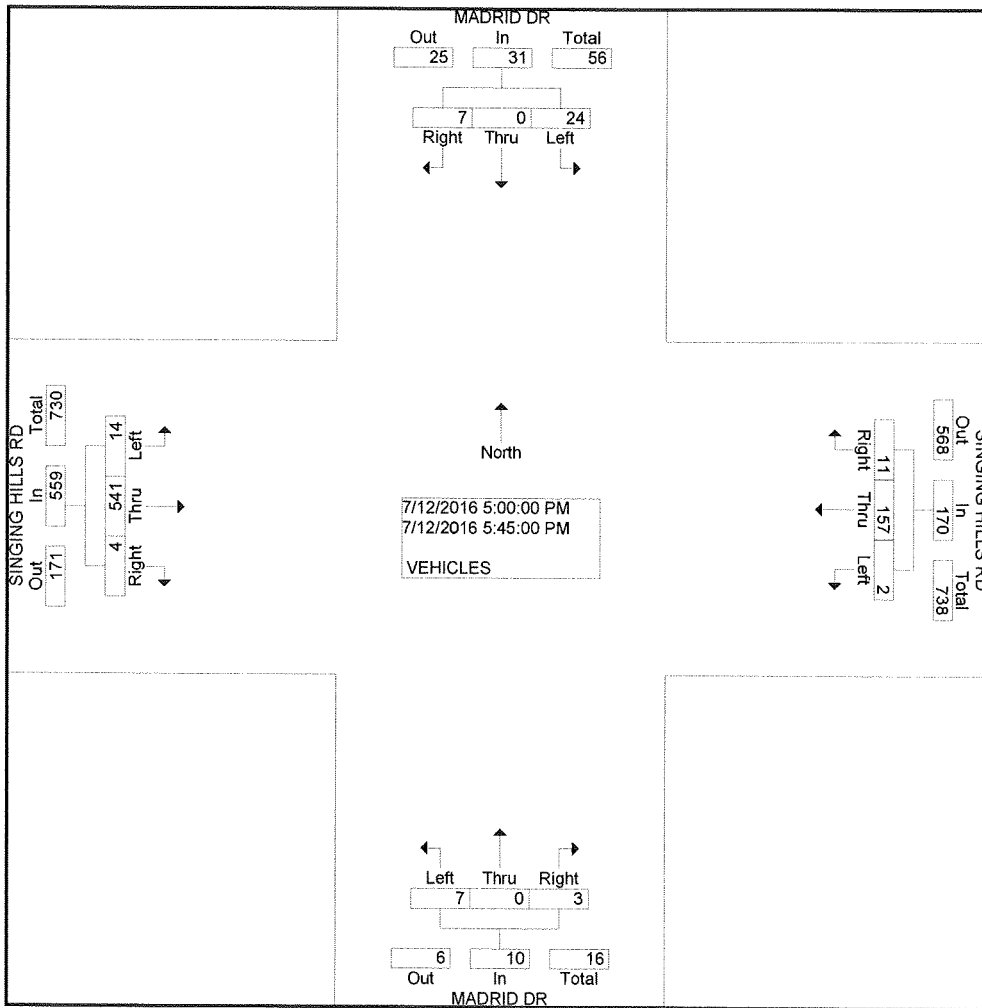
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: MADRID DR  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : MADRSING  
Site Code : 00000010  
Start Date : 7/12/2016  
Page No : 2

Start Time	MADRID DR Southbound				SINGING HILLS RD Westbound				MADRID DR Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	24	0	7	31	2	157	11	170	7	0	3	10	14	541	4	559	770
Percent	77.4	0.0	22.6		1.2	92.4	6.5		70.0	0.0	30.0		2.5	96.8	0.7		
05:30																	
Volume	4	0	4	8	1	44	2	47	2	0	1	3	3	156	1	160	218
Peak Factor	0.883																
High Int.	05:45 PM																
Volume	8	0	1	9	1	44	2	47	4	0	1	5	3	156	1	160	
Peak Factor	0.861				0.904				0.500				0.873				





**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: THUNDER HILL RD  
E/W STREET: SINGING HILL RD  
CITY:  
COUNTY: ELBERT

File Name : THUNSIING  
Site Code : 00000008  
Start Date : 7/12/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	THUNDER HILL RD Southbound			SINGING HILLS RD Westbound			THUNDER HILL RD Northbound			SINGING HILLS RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	12	0	95	1	0	0	1	0	16	0	125
06:45 AM	0	0	13	0	85	1	0	0	0	1	19	0	119
Total	0	0	25	0	180	2	0	0	1	1	35	0	244
07:00 AM	0	0	14	0	92	0	1	0	1	2	19	0	129
07:15 AM	0	0	13	0	99	0	1	0	0	2	26	0	141
07:30 AM	0	0	13	0	105	0	0	0	0	1	29	0	148
07:45 AM	2	0	12	0	84	2	0	0	0	2	35	1	138
Total	2	0	52	0	380	2	2	0	1	7	109	1	556
08:00 AM	0	0	9	0	91	1	0	0	0	0	37	0	138
08:15 AM	0	0	13	0	78	0	1	0	0	1	31	0	124
Total	0	0	22	0	169	1	1	0	0	1	68	0	262
04:00 PM	1	0	3	0	50	1	0	0	0	10	92	0	157
04:15 PM	1	0	5	0	58	2	0	0	0	12	97	0	175
04:30 PM	3	0	6	0	41	3	0	0	1	8	100	0	162
04:45 PM	0	0	3	0	35	1	1	0	0	13	106	1	160
Total	5	0	17	0	184	7	1	0	1	43	395	1	654
05:00 PM	1	0	4	1	45	0	0	0	0	11	113	0	175
05:15 PM	4	0	2	0	35	1	1	0	0	13	108	1	165
05:30 PM	0	0	5	0	40	2	1	0	0	20	142	0	210
05:45 PM	0	0	1	0	30	1	0	0	0	9	126	2	169
Total	5	0	12	1	150	4	2	0	0	53	489	3	719
Grand Total	12	0	128	1	1063	16	6	0	3	105	1096	5	2435
Apprch %	8.6	0.0	91.4	0.1	98.4	1.5	66.7	0.0	33.3	8.7	90.9	0.4	
Total %	0.5	0.0	5.3	0.0	43.7	0.7	0.2	0.0	0.1	4.3	45.0	0.2	

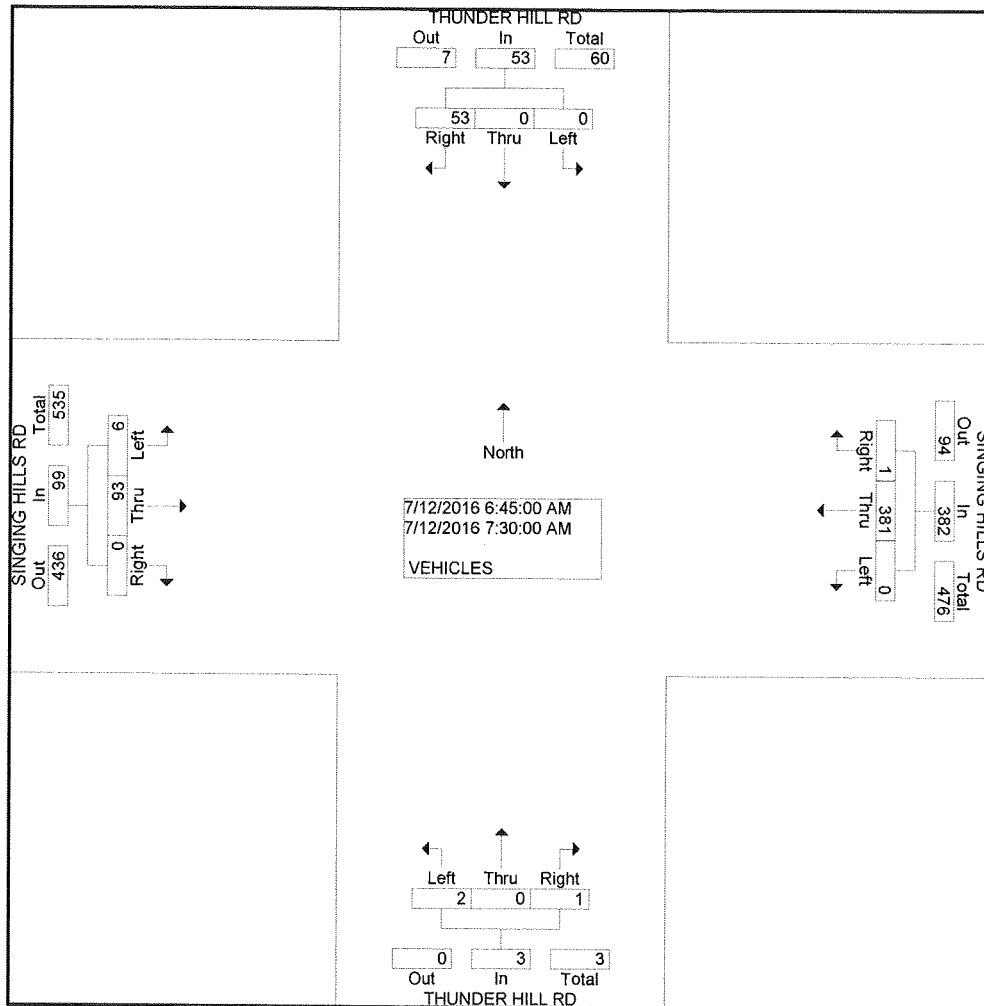
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: THUNDER HILL RD  
E/W STREET: SINGING HILL RD  
CITY:  
COUNTY: ELBERT

File Name : THUNSIING  
Site Code : 00000008  
Start Date : 7/12/2016  
Page No : 2

Start Time	THUNDER HILL RD Southbound				SINGING HILLS RD Westbound				THUNDER HILL RD Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	0	0	53	53	0	381	1	382	2	0	1	3	6	93	0	99	537
Percent	0.0	0.0	100.0		0.0	99.7	0.3		66.7	0.0	33.3		6.1	93.9	0.0		
07:30 Volume	0	0	13	13	0	105	0	105	0	0	0	0	1	29	0	30	148
Peak Factor	0.907																
High Int.	07:00 AM																
Volume	0	0	14	14	0	105	0	105	1	0	1	2	1	29	0	30	
Peak Factor	0.946																
								0.910				0.375					0.825



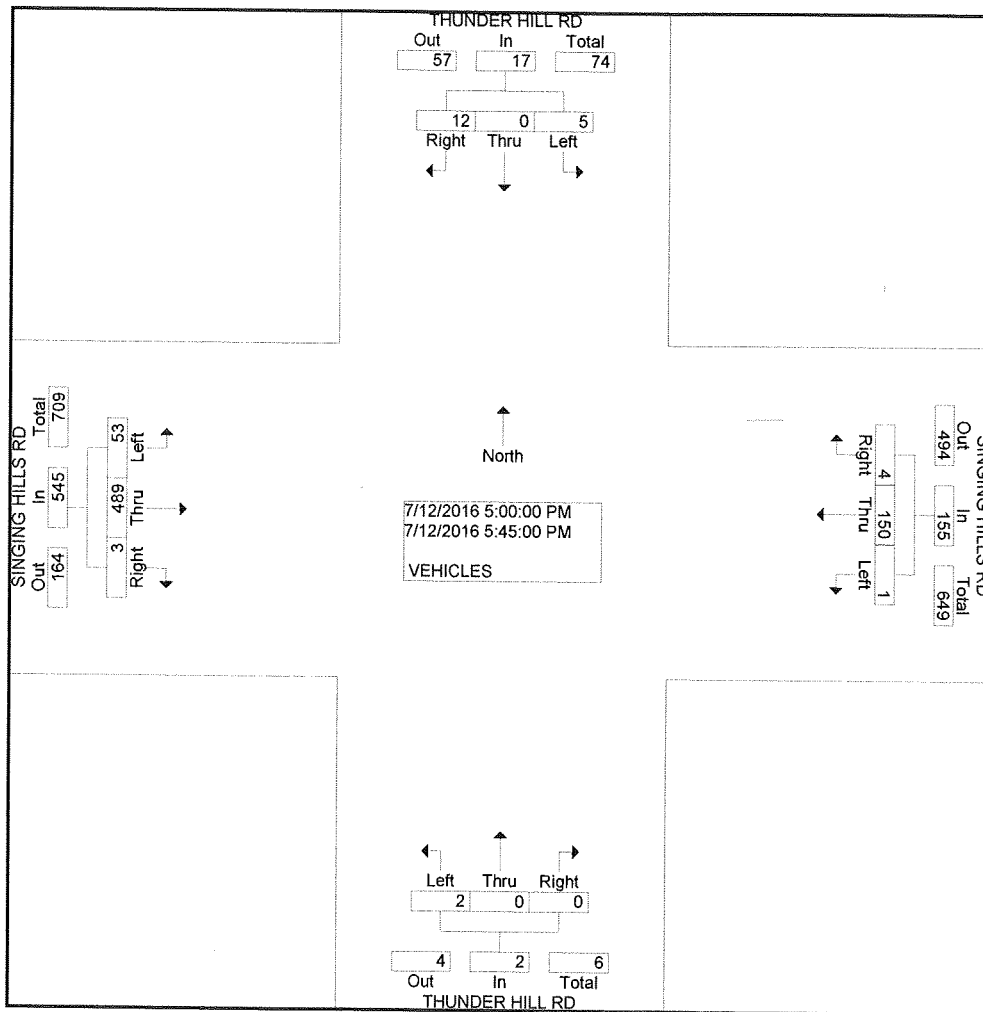
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: THUNDER HILL RD  
E/W STREET: SINGING HILL RD  
CITY:  
COUNTY: ELBERT

File Name : THUNSING  
Site Code : 00000008  
Start Date : 7/12/2016  
Page No : 2

Start Time	THUNDER HILL RD Southbound				SINGING HILLS RD Westbound				THUNDER HILL RD Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	5	0	12	17	1	150	4	155	2	0	0	2	53	489	3	545	719
Percent	29.4	0.0	70.6		0.6	96.8	2.6		100.0	0.0	0.0		9.7	89.7	0.6		
05:30 Volume	0	0	5	5	0	40	2	42	1	0	0	1	20	142	0	162	210
Peak Factor	0.856																
High Int.	05:15 PM																
Volume	4	0	2	6	1	45	0	46	1	0	0	1	20	142	0	162	
Peak Factor	0.708																
								0.842				0.500					0.841



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-13  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : CR13SING  
Site Code : 00000005  
Start Date : 7/13/2016  
Page No : 1

Groups Printed- 1 - VEHICLES

Start Time	CR-13 Southbound			SINGING HILLS RD Westbound			CR-13 Northbound			SINGING HILLS RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	1	1	14	6	67	0	13	0	3	1	7	5	118
06:45 AM	1	0	17	4	68	1	17	1	4	0	9	3	125
Total	2	1	31	10	135	1	30	1	7	1	16	8	243
07:00 AM	1	5	23	6	66	0	19	1	2	1	13	2	139
07:15 AM	1	5	10	7	69	0	23	1	3	4	26	8	157
07:30 AM	1	1	12	9	59	0	20	1	3	1	25	11	143
07:45 AM	1	2	16	7	48	1	12	0	10	3	16	9	125
Total	4	13	61	29	242	1	74	3	18	9	80	30	564
08:00 AM	2	7	10	10	61	2	18	0	1	3	11	6	131
08:15 AM	1	0	13	5	48	2	13	2	9	3	21	10	127
Total	3	7	23	15	109	4	31	2	10	6	32	16	258
04:00 PM	1	4	10	5	33	1	10	1	6	16	53	25	165
04:15 PM	0	6	7	9	26	0	14	7	7	15	41	22	154
04:30 PM	2	1	7	5	19	1	11	2	4	13	60	24	149
04:45 PM	2	0	6	6	17	5	10	3	9	16	63	22	159
Total	5	11	30	25	95	7	45	13	26	60	217	93	627
05:00 PM	3	3	13	3	29	3	17	4	7	20	61	19	182
05:15 PM	3	4	7	4	23	2	12	3	7	17	64	17	163
05:30 PM	1	5	6	7	27	2	15	4	10	17	61	13	168
05:45 PM	1	3	4	6	24	1	10	2	8	13	54	12	138
Total	8	15	30	20	103	8	54	13	32	67	240	61	651
Grand Total	22	47	175	99	684	21	234	32	93	143	585	208	2343
Apprch %	9.0	19.3	71.7	12.3	85.1	2.6	65.2	8.9	25.9	15.3	62.5	22.2	
Total %	0.9	2.0	7.5	4.2	29.2	0.9	10.0	1.4	4.0	6.1	25.0	8.9	

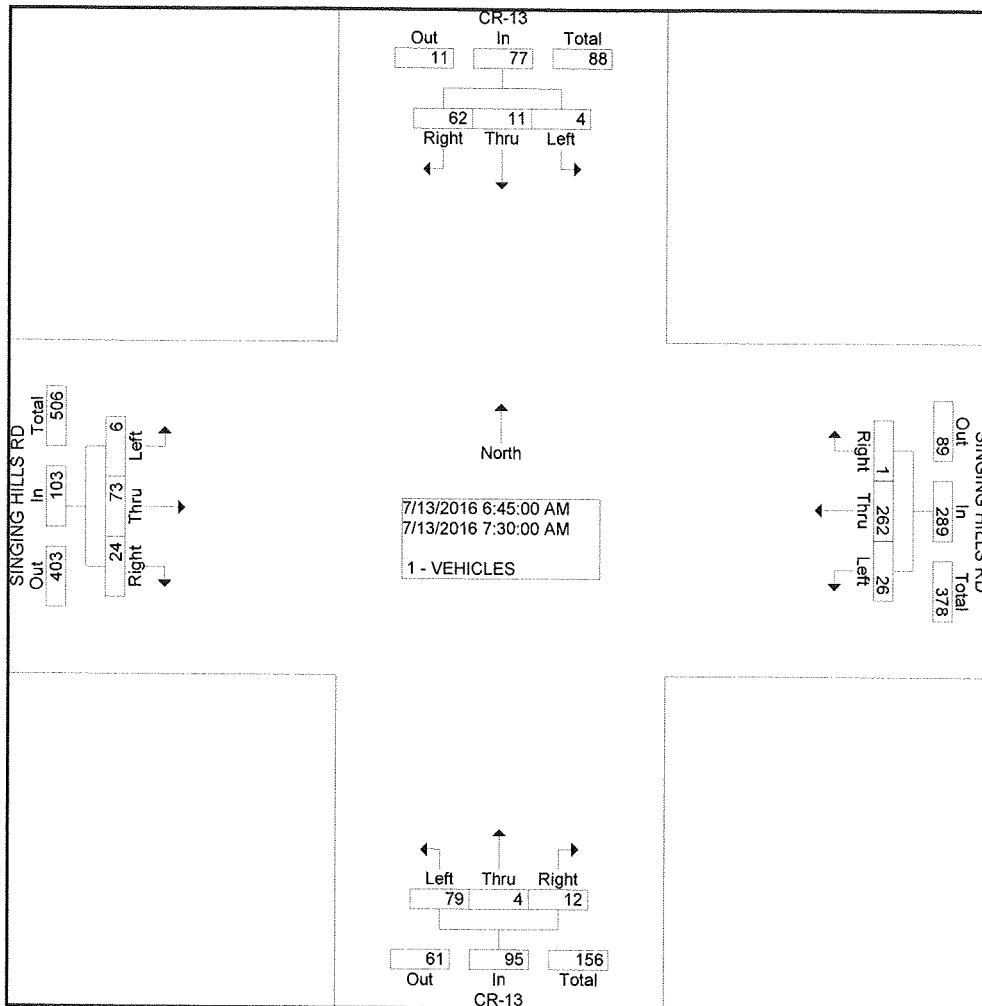
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-13  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : CR13SING  
Site Code : 00000005  
Start Date : 7/13/2016  
Page No : 2

Start Time	CR-13 Southbound				SINGING HILLS RD Westbound				CR-13 Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:30 AM to 08:30 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	4	11	62	77	26	262	1	289	79	4	12	95	6	73	24	103	564
Percent	5.2	14.3	80.5		9.0	90.7	0.3		83.2	4.2	12.6		5.8	70.9	23.3		
07:15	1	5	10	16	7	69	0	76	23	1	3	27	4	26	8	38	157
Volume																	
Peak Factor	0.898																
High Int.	07:00 AM				07:15 AM				07:15 AM				07:15 AM				
Volume	1	5	23	29	7	69	0	76	23	1	3	27	4	26	8	38	
Peak Factor	0.664				0.951				0.880				0.678				



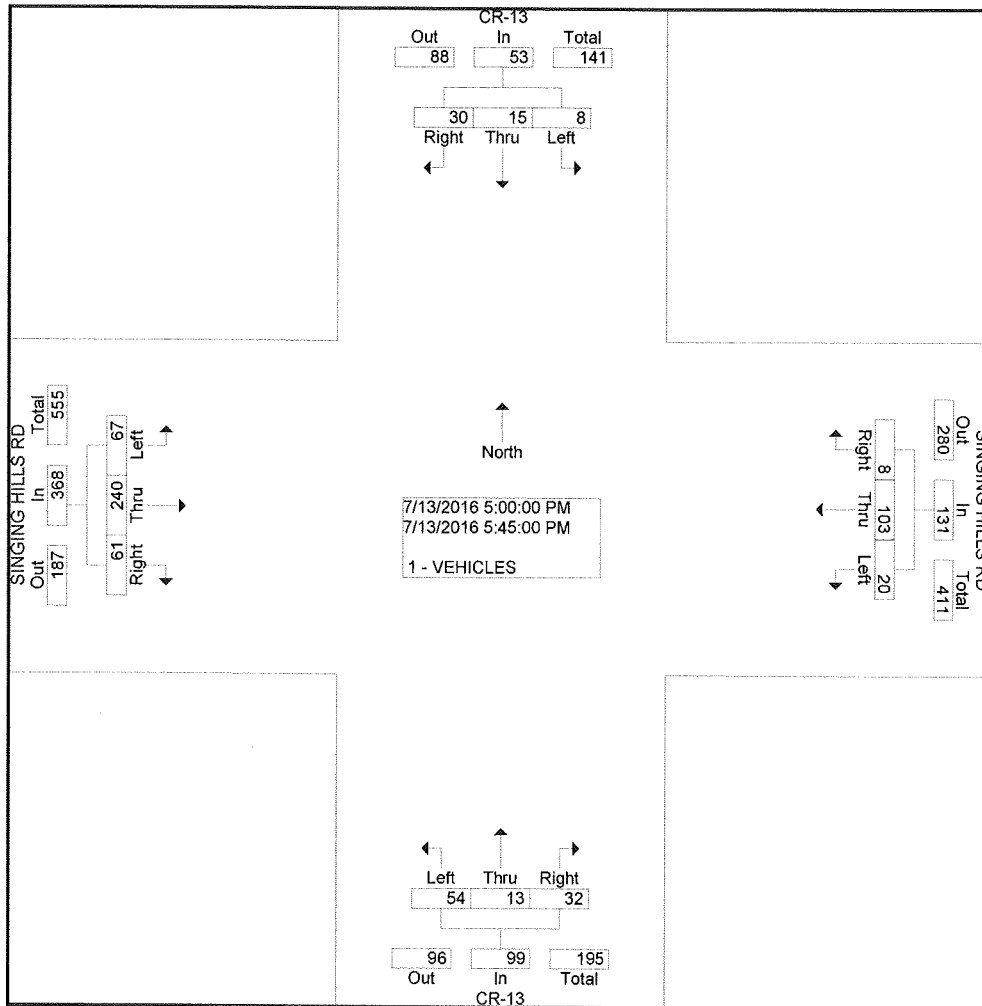
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-13  
E/W STREET: SINGING HILLS RD  
CITY:  
COUNTY: ELBERT

File Name : CR13SING  
Site Code : 00000005  
Start Date : 7/13/2016  
Page No : 2

Start Time	CR-13 Southbound				SINGING HILLS RD Westbound				CR-13 Northbound				SINGING HILLS RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	8	15	30	53	20	103	8	131	54	13	32	99	67	240	61	368	651
Percent	15.1	28.3	56.6		15.3	78.6	6.1		54.5	13.1	32.3		18.2	65.2	16.6		
05:00 Volume	3	3	13	19	3	29	3	35	17	4	7	28	20	61	19	100	182
Peak Factor																	
High Int.	05:00 PM				05:30 PM				05:30 PM				05:00 PM				0.894
Volume	3	3	13	19	7	27	2	36	15	4	10	29	20	61	19	100	
Peak Factor	0.697				0.910				0.853				0.920				



COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: FLINTWOOD RD  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : FLINHILL  
Site Code : 0000013  
Start Date : 7/13/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	FLINTWOOD RD Southbound			HILLTOP RD Westbound			FLINTWOOD RD Northbound			Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	3	8	0	3	0	37	0	52	0	0	0	0	103
06:45 AM	4	9	0	1	0	35	0	51	0	0	0	0	100
Total	7	17	0	4	0	72	0	103	0	0	0	0	203
07:00 AM	5	13	0	3	0	47	0	62	3	0	0	0	133
07:15 AM	5	11	0	1	0	53	0	45	0	0	0	0	115
07:30 AM	8	20	0	1	0	44	0	58	2	0	0	0	133
07:45 AM	5	19	0	7	0	31	0	50	1	0	0	0	113
Total	23	63	0	12	0	175	0	215	6	0	0	0	494
08:00 AM	8	23	0	4	0	34	0	49	2	0	0	0	120
08:15 AM	6	15	0	0	0	33	0	50	3	0	0	0	107
Total	14	38	0	4	0	67	0	99	5	0	0	0	227
04:00 PM	26	39	0	3	0	20	0	29	3	0	0	0	120
04:15 PM	47	38	0	3	0	15	0	34	2	0	0	0	139
04:30 PM	39	40	0	2	0	17	0	37	7	0	0	0	142
04:45 PM	34	50	0	0	0	13	0	35	5	0	0	0	137
Total	146	167	0	8	0	65	0	135	17	0	0	0	538
05:00 PM	47	48	0	2	0	17	0	26	1	0	0	0	141
05:15 PM	45	38	0	1	0	6	0	23	3	0	0	0	116
05:30 PM	44	40	0	2	0	11	0	30	2	0	0	0	129
05:45 PM	39	43	0	3	0	13	0	36	1	0	0	0	135
Total	175	169	0	8	0	47	0	115	7	0	0	0	521
Grand Total	365	454	0	36	0	426	0	667	35	0	0	0	1983
Apprch %	44.6	55.4	0.0	7.8	0.0	92.2	0.0	95.0	5.0	0.0	0.0	0.0	
Total %	18.4	22.9	0.0	1.8	0.0	21.5	0.0	33.6	1.8	0.0	0.0	0.0	

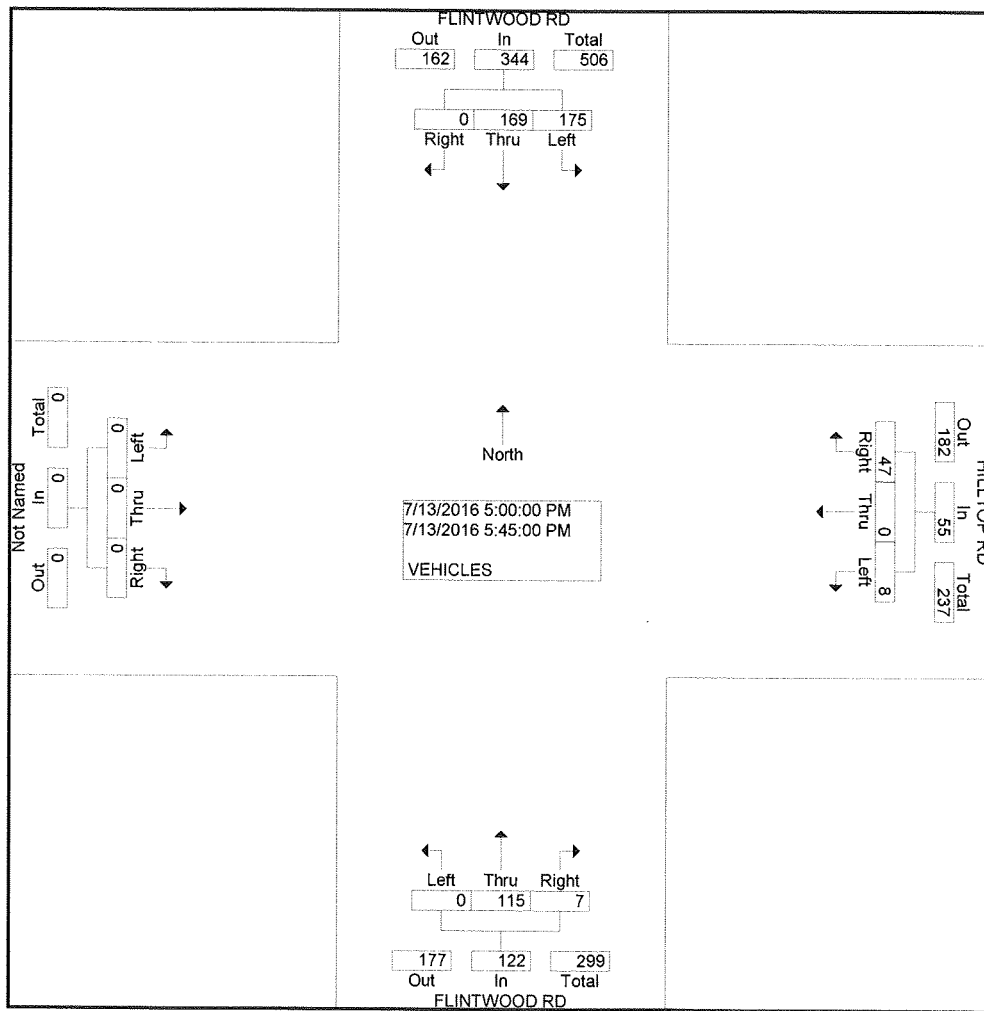
COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: FLINTWOOD RD  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : FLINHILL  
Site Code : 00000013  
Start Date : 7/13/2016  
Page No : 2

Start Time	FLINTWOOD RD Southbound				HILLTOP RD Westbound				FLINTWOOD RD Northbound				Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	175	169	0	344	8	0	47	55	0	115	7	122	0	0	0	0	521
Percent	50.9	49.1	0.0		14.5	0.0	85.5		0.0	94.3	5.7		0.0	0.0	0.0		
05:00																	
Volume	47	48	0	95	2	0	17	19	0	26	1	27	0	0	0	0	141
Peak Factor	0.924																
High Int.	05:00 PM				05:00 PM				05:45 PM								
Volume	47	48	0	95	2	0	17	19	0	36	1	37					
Peak Factor	0.905				0.724				0.824								





**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: DELBERT RD  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : DELBHILL  
Site Code : 00000011  
Start Date : 7/13/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	Southbound			HILLTOP RD Westbound			DELBERT RD Northbound			HILLTOP RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	1	35	0	0	0	0	0	3	0	39
06:45 AM	0	0	0	1	36	0	1	0	0	0	2	0	40
Total	0	0	0	2	71	0	1	0	0	0	5	0	79
07:00 AM	0	0	0	0	48	0	0	0	0	0	5	1	54
07:15 AM	0	0	0	0	54	0	2	0	0	0	5	0	61
07:30 AM	0	0	0	0	40	0	0	0	0	0	7	0	47
07:45 AM	0	0	0	0	38	0	0	0	0	0	5	0	43
Total	0	0	0	0	180	0	2	0	0	0	22	1	205
08:00 AM	0	0	0	0	35	0	1	0	0	0	8	1	45
08:15 AM	0	0	0	1	31	0	0	0	0	0	7	1	40
Total	0	0	0	1	66	0	1	0	0	0	15	2	85
04:00 PM	0	0	0	0	15	0	0	0	0	0	29	0	44
04:15 PM	0	0	0	0	16	0	0	0	0	0	44	0	60
04:30 PM	0	0	0	0	12	0	0	0	0	0	44	0	56
04:45 PM	0	0	0	0	11	0	1	0	0	0	41	2	55
Total	0	0	0	0	54	0	1	0	0	0	158	2	215
05:00 PM	0	0	0	0	16	0	1	0	0	0	43	1	61
05:15 PM	0	0	0	1	7	0	0	0	0	0	41	0	49
05:30 PM	0	0	0	0	10	0	0	0	0	0	44	1	55
05:45 PM	0	0	0	0	11	0	0	0	0	0	40	0	51
Total	0	0	0	1	44	0	1	0	0	0	168	2	216
Grand Total	0	0	0	4	415	0	6	0	0	0	368	7	800
Apprch %	0.0	0.0	0.0	1.0	99.0	0.0	100.0	0.0	0.0	0.0	98.1	1.9	
Total %	0.0	0.0	0.0	0.5	51.9	0.0	0.8	0.0	0.0	0.0	46.0	0.9	

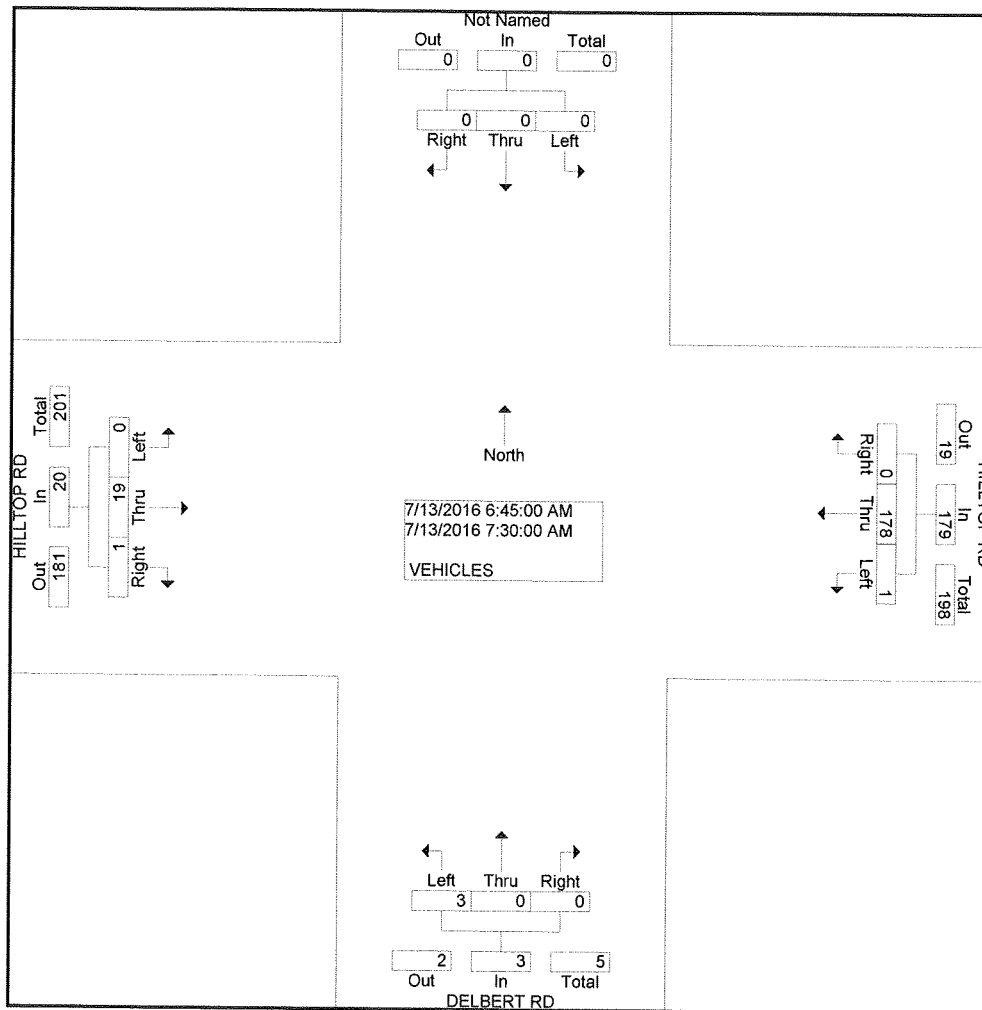
COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: DELBERT RD  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : DELBHILL  
Site Code : 0000011  
Start Date : 7/13/2016  
Page No : 2

Start Time	Southbound				HILLTOP RD Westbound				DELBERT RD Northbound				HILLTOP RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																	
Intersection 06:45 AM																	
Volume	0	0	0	0	1	178	0	179	3	0	0	3	0	19	1	20	202
Percent	0.0	0.0	0.0		0.6	99.4	0.0		100.0	0.0	0.0		0.0	95.0	5.0		
07:15 Volume	0	0	0	0	0	54	0	54	2	0	0	2	0	5	0	5	61
Peak Factor High Int.					07:15 AM				07:15 AM				07:30 AM				0.828
Volume	0	0	0	0	0	54	0	54	2	0	0	2	0	7	0	7	
Peak Factor					0.829				0.375				0.714				



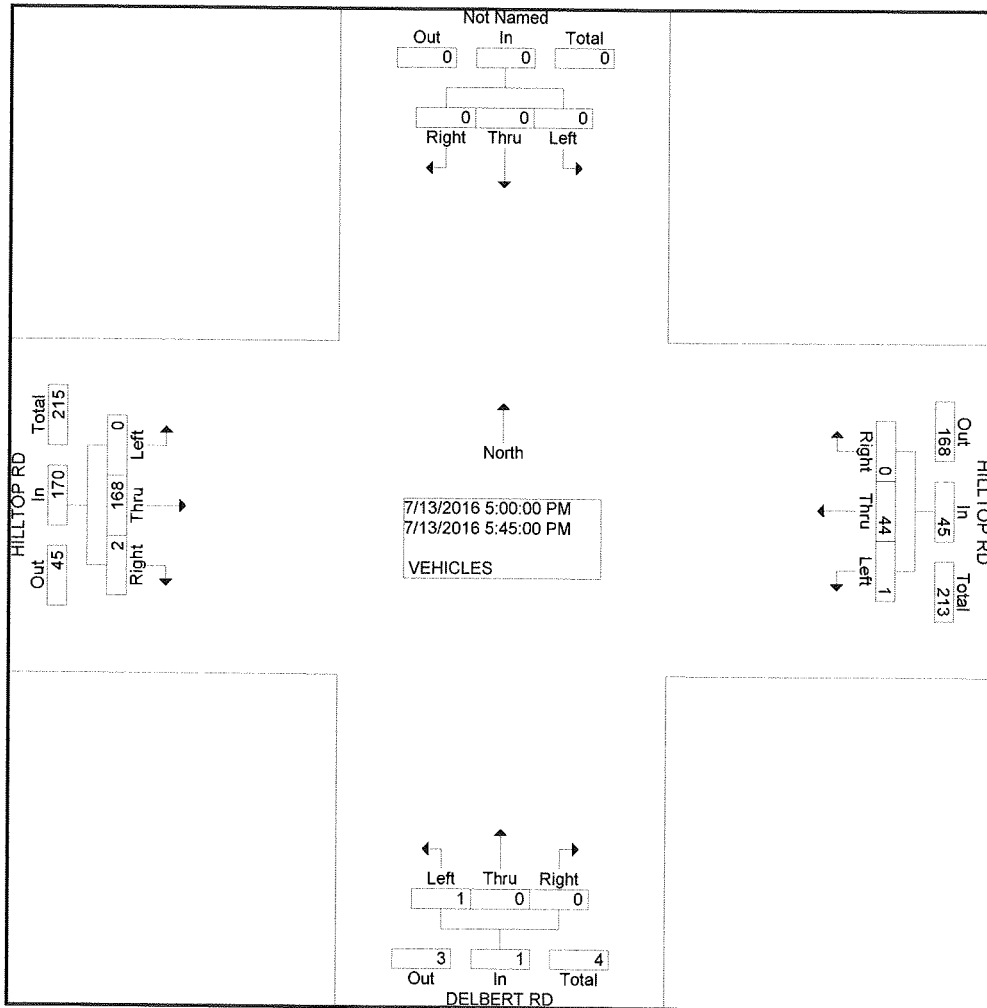
COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: DELBERT RD  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : DELBHILL  
Site Code : 0000011  
Start Date : 7/13/2016  
Page No : 2

Start Time	Southbound				HILLTOP RD Westbound				DELBERT RD Northbound				HILLTOP RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	0	0	0	0	1	44	0	45	1	0	0	1	0	168	2	170	216
Percent	0.0	0.0	0.0		2.2	97.8	0.0		100.0	0.0	0.0		0.0	98.8	1.2		
05:00 Volume	0	0	0	0	0	16	0	16	1	0	0	1	0	43	1	44	61
Peak Factor	0.885																
High Int.	05:00 PM																
Volume	0	0	0	0	0	16	0	16	1	0	0	1	0	44	1	45	
Peak Factor					0.703				0.250				0.944				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-5  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : CR5HILLT  
Site Code : 00000010  
Start Date : 7/13/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	CR-5 Southbound			HILLTOP RD Westbound			CR-5 Northbound			HILLTOP RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	22	0	15	0	1	0	0	3	41
06:45 AM	0	0	0	0	22	0	14	0	1	0	0	2	39
Total	0	0	0	0	44	0	29	0	2	0	0	5	80
07:00 AM	0	0	0	0	32	0	17	0	2	0	4	0	55
07:15 AM	0	0	0	0	30	0	21	0	2	0	4	0	57
07:30 AM	0	0	0	1	24	0	15	0	3	0	4	4	51
07:45 AM	0	0	0	0	25	0	10	0	1	0	2	3	41
Total	0	0	0	1	111	0	63	0	8	0	14	7	204
08:00 AM	0	0	0	2	18	0	17	0	0	0	5	4	46
08:15 AM	0	0	0	0	17	0	14	0	4	0	5	1	41
Total	0	0	0	2	35	0	31	0	4	0	10	5	87
04:00 PM	1	0	0	2	7	0	8	0	1	0	18	9	46
04:15 PM	0	0	0	2	5	0	8	0	0	1	21	16	53
04:30 PM	0	0	0	0	9	0	4	0	3	0	24	22	62
04:45 PM	0	0	0	1	3	0	7	0	3	0	25	13	52
Total	1	0	0	5	24	0	27	0	7	1	88	60	213
05:00 PM	0	0	0	2	10	0	7	0	0	0	26	18	63
05:15 PM	0	0	0	3	5	0	2	0	3	0	22	17	52
05:30 PM	0	0	0	2	5	1	6	0	2	0	27	18	61
05:45 PM	0	0	0	0	4	0	8	0	0	0	21	19	52
Total	0	0	0	7	24	1	23	0	5	0	96	72	228
Grand Total	1	0	0	15	238	1	173	0	26	1	208	149	812
Apprch %	100.0	0.0	0.0	5.9	93.7	0.4	86.9	0.0	13.1	0.3	58.1	41.6	
Total %	0.1	0.0	0.0	1.8	29.3	0.1	21.3	0.0	3.2	0.1	25.6	18.3	

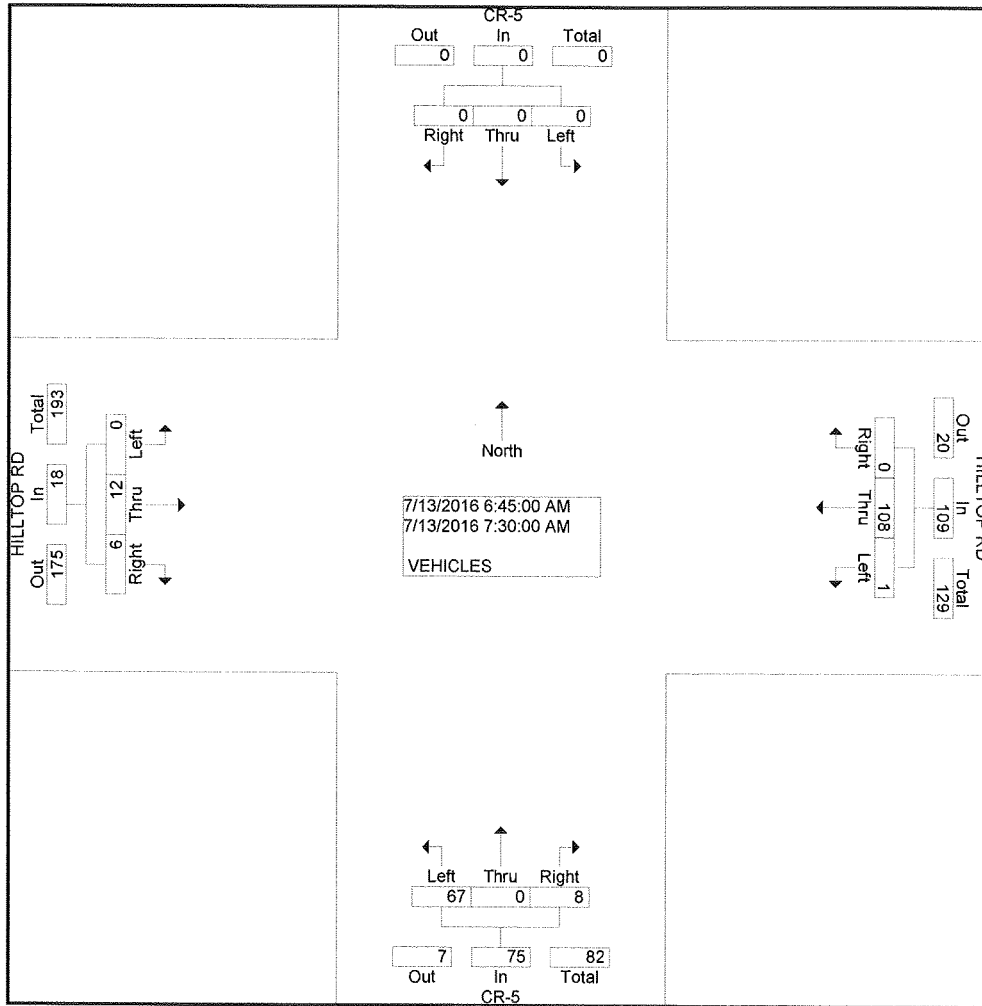
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-5  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : CR5HILLT  
Site Code : 0000010  
Start Date : 7/13/2016  
Page No : 2

Start Time	CR-5 Southbound				HILLTOP RD Westbound				CR-5 Northbound				HILLTOP RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	0	0	0	0	1	108	0	109	67	0	8	75	0	12	6	18	202
Percent	0.0	0.0	0.0		0.9	99.1	0.0		89.3	0.0	10.7		0.0	66.7	33.3		
07:15																	
Volume	0	0	0	0	0	30	0	30	21	0	2	23	0	4	0	4	57
Peak Factor	0.886																
High Int.																	
Volume	0	0	0	0	07:00 AM				07:15 AM				07:30 AM				
Peak Factor					0	32	0	32	21	0	2	23	0	4	4	8	
					0.852				0.815				0.563				



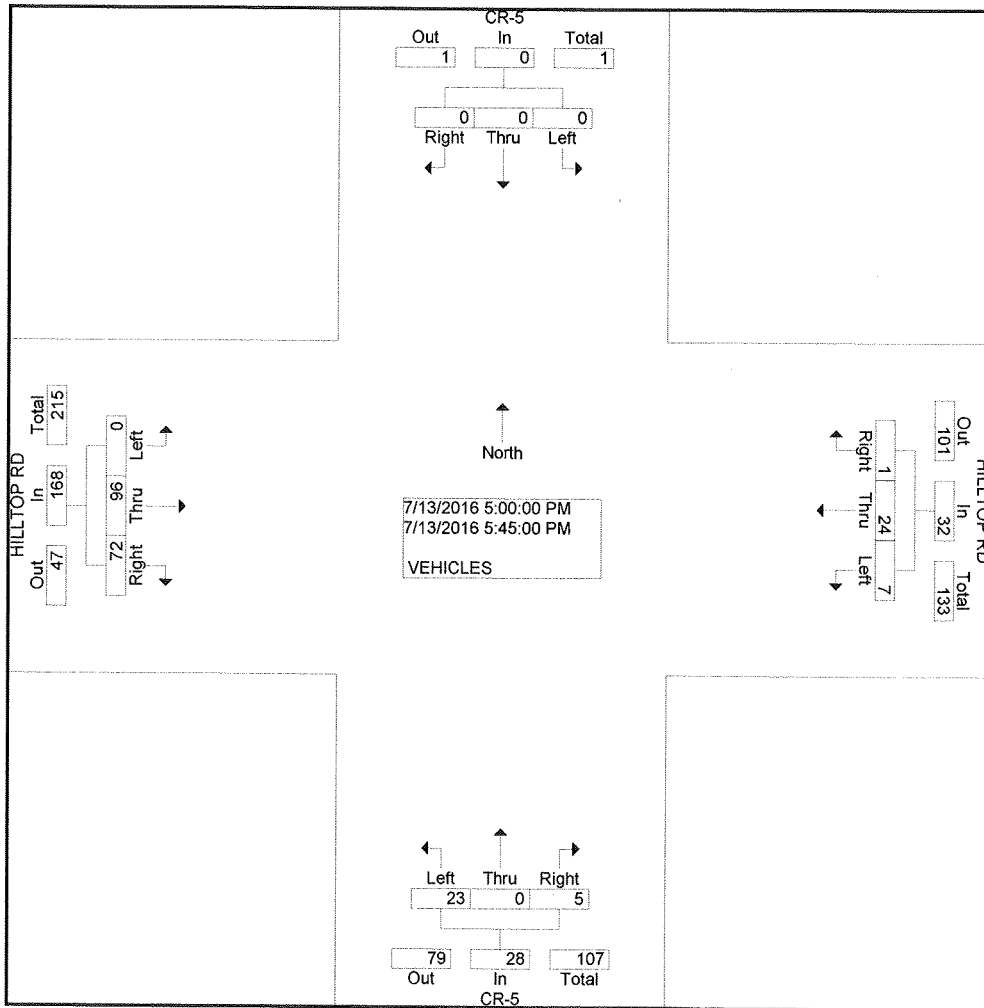
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-5  
E/W STREET: HILLTOP RD  
CITY:  
COUNTY: ELBERT

File Name : CR5HILLT  
Site Code : 0000010  
Start Date : 7/13/2016  
Page No : 2

Start Time	CR-5 Southbound				HILLTOP RD Westbound				CR-5 Northbound				HILLTOP RD Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																		
Intersection	05:00 PM																	
Volume	0	0	0	0	7	24	1	32	23	0	5	28	0	96	72	168	228	
Percent	0.0	0.0	0.0	0	21.9	75.0	3.1		82.1	0.0	17.9		0.0	57.1	42.9			
05:00																		
Volume	0	0	0	0	2	10	0	12	7	0	0	7	0	26	18	44	63	
Peak Factor																		
High Int.																		
Volume	0	0	0	0	05:00 PM				05:30 PM				05:30 PM				0.905	
Peak Factor					2	10	0	12	6	0	2	8	0	27	18	45		
								0.667					0.875					0.933



COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-13  
E/W STREET: CR-158 (HILLTOP RD)  
CITY:  
COUNTY: ELBERT

File Name : CR13CR15  
Site Code : 00000008  
Start Date : 7/13/2016  
Page No : 1

Groups Printed- VEHICLES

Start Time	CR-13 Southbound			Westbound			CR-13 Northbound			CR-158 (HILLTOP RD) Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	10	1	0	0	0	20	17	0	0	0	1	49
06:45 AM	0	9	0	0	0	0	18	16	0	1	0	0	44
Total	0	19	1	0	0	0	38	33	0	1	0	1	93
07:00 AM	0	10	0	0	0	0	27	15	0	1	0	1	54
07:15 AM	0	19	0	0	0	0	25	22	0	0	0	7	73
07:30 AM	0	22	1	0	0	0	26	19	0	1	0	3	72
07:45 AM	0	17	2	0	0	0	17	23	0	2	0	2	63
Total	0	68	3	0	0	0	95	79	0	4	0	13	262
08:00 AM	0	23	0	0	0	0	17	17	0	0	0	3	60
08:15 AM	0	17	3	0	0	0	20	26	0	2	0	7	75
Total	0	40	3	0	0	0	37	43	0	2	0	10	135
04:00 PM	0	27	1	0	0	0	6	13	0	2	0	17	66
04:15 PM	0	25	2	0	0	0	8	20	0	0	0	20	75
04:30 PM	0	34	0	0	0	0	4	23	0	3	0	23	87
04:45 PM	0	19	0	0	0	0	4	26	0	4	0	25	78
Total	0	105	3	0	0	0	22	82	0	9	0	85	306
05:00 PM	0	36	2	0	0	0	10	20	0	0	0	26	94
05:15 PM	0	30	2	0	0	0	6	22	0	1	0	22	83
05:30 PM	0	34	0	0	0	0	4	20	0	0	0	25	83
05:45 PM	0	28	0	0	0	0	5	20	0	0	0	25	78
Total	0	128	4	0	0	0	25	82	0	1	0	98	338
Grand Total	0	360	14	0	0	0	217	319	0	17	0	207	1134
Apprch %	0.0	96.3	3.7	0.0	0.0	0.0	40.5	59.5	0.0	7.6	0.0	92.4	
Total %	0.0	31.7	1.2	0.0	0.0	0.0	19.1	28.1	0.0	1.5	0.0	18.3	

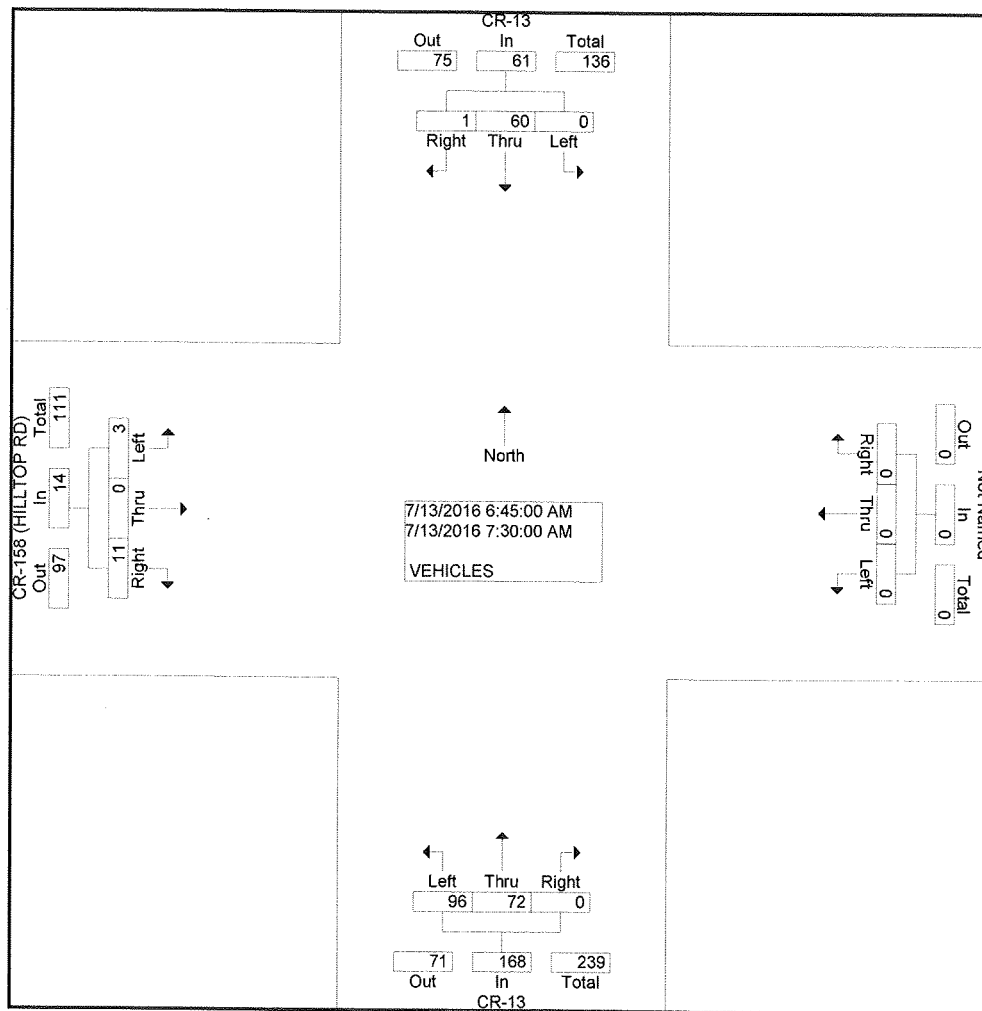
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-13  
E/W STREET: CR-158 (HILLTOP RD)  
CITY:  
COUNTY: ELBERT

File Name : CR13CR15  
Site Code : 00000008  
Start Date : 7/13/2016  
Page No : 2

Start Time	CR-13 Southbound				Westbound				CR-13 Northbound				CR-158 (HILLTOP RD) Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																	
Intersection	06:45 AM																
Volume	0	60	1	61	0	0	0	0	96	72	0	168	3	0	11	14	243
Percent	0.0	98.4	1.6		0.0	0.0	0.0		57.1	42.9	0.0		21.4	0.0	78.6		
07:15																	
Volume	0	19	0	19	0	0	0	0	25	22	0	47	0	0	7	7	73
Peak Factor	0.832																
High Int.	07:30 AM																
Volume	0	22	1	23	0	0	0	0	25	22	0	47	0	0	7	7	7
Peak Factor	0.663								0.894				0.500				





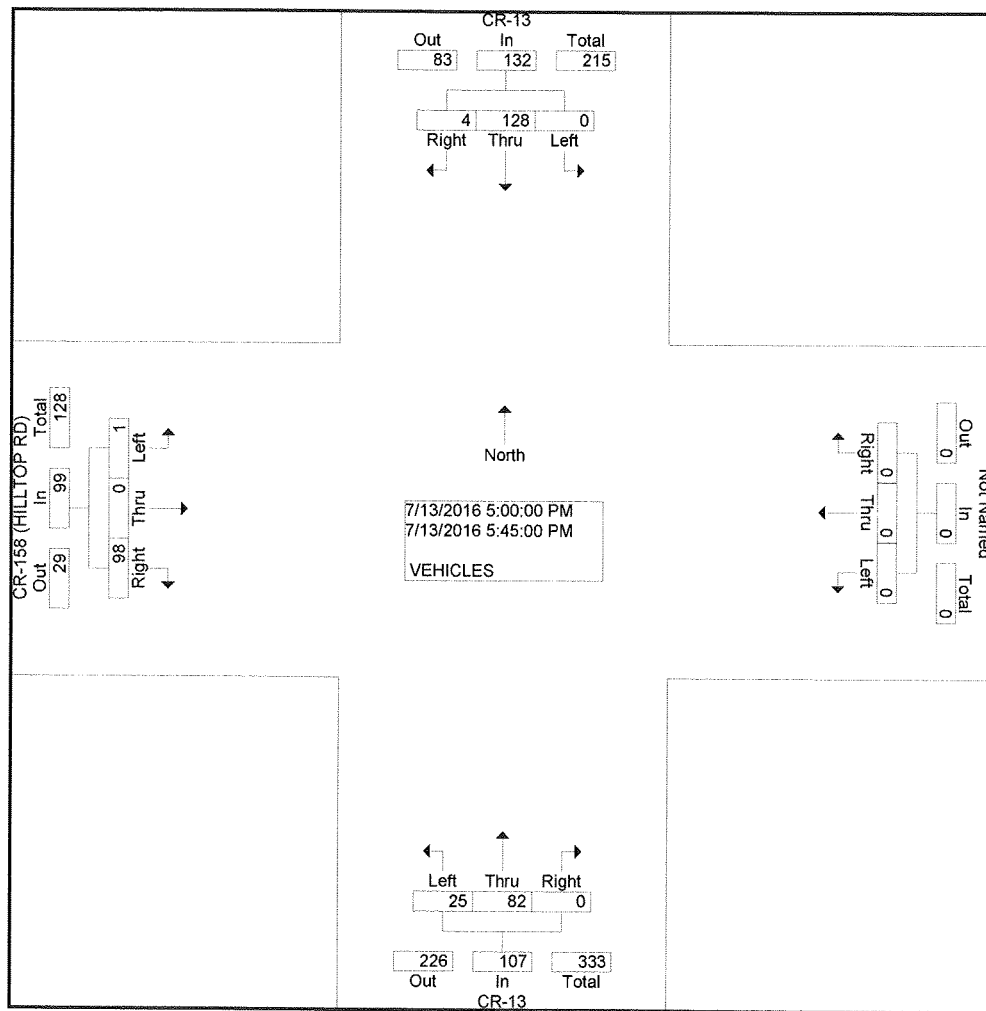
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR-13  
E/W STREET: CR-158 (HILLTOP RD)  
CITY:  
COUNTY: ELBERT

File Name : CR13CR15  
Site Code : 00000008  
Start Date : 7/13/2016  
Page No : 2

Start Time	CR-13 Southbound				Westbound				CR-13 Northbound				CR-158 (HILLTOP RD) Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection 05:00 PM																	
Volume	0	128	4	132	0	0	0	0	25	82	0	107	1	0	98	99	338
Percent	0.0	97.0	3.0		0.0	0.0	0.0		23.4	76.6	0.0		1.0	0.0	99.0		
05:00 Volume	0	36	2	38	0	0	0	0	10	20	0	30	0	0	26	26	94
Peak Factor	0.899																
High Int.	05:00 PM								05:00 PM				05:00 PM				
Volume	0	36	2	38	0	0	0	0	10	20	0	30	0	0	26	26	
Peak Factor	0.868								0.892				0.952				



Site ID:071261000000

Station Name:

Description:HILLTOP RD SE/O FLINTWOOD RD

City:

County:ELBERT

7/13/2016	Lane 1 (Northwest)	Lane 2 (Southeast)	All Lanes
00:00	2	10	12
01:00	1	5	6
02:00	1	2	3
03:00	2	1	3
04:00	22	2	24
05:00	76	7	83
06:00	145	15	160
07:00	195	25	220
08:00	160	50	210
09:00	100	45	145
10:00	97	55	152
11:00	83	82	165
12:00	81	70	151
13:00	60	73	133
14:00	71	104	175
15:00	81	114	195
16:00	68	174	242
17:00	51	182	233
18:00	56	167	223
19:00	35	121	156
20:00	39	67	106
21:00	17	59	76
22:00	7	35	42
23:00	3	18	21
<b>AM Peak Hour</b>	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
<b>AM Peak Value</b>	195	82	220
<b>PM Peak Hour</b>	12:00 - 12:59	17:00 - 17:59	16:00 - 16:59
<b>PM Peak Value</b>	81	182	242
<b>Total</b>	1453	1483	2936
<b>Percentages</b>	49.49%	50.51%	100.00%

Site ID: 071272000000

Station Name:

Description: CR-158 W/O FLINTWOOD RD

City:

County: ELBERT

7/13/2016	Lane 1 (West)	Lane 2 (East)	All Lanes
00:00	1	10	11
01:00	1	4	5
02:00	1	1	2
03:00	2	2	4
04:00	21	1	22
05:00	67	6	73
06:00	140	11	151
07:00	187	21	208
08:00	152	31	183
09:00	89	35	124
10:00	86	38	124
11:00	70	73	143
12:00	65	51	116
13:00	51	63	114
14:00	63	94	157
15:00	61	100	161
16:00	50	169	219
17:00	44	172	216
18:00	49	145	194
19:00	30	112	142
20:00	27	63	90
21:00	14	55	69
22:00	7	37	44
23:00	3	14	17
<b>AM Peak Hour</b>	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
<b>AM Peak Value</b>	187	73	208
<b>PM Peak Hour</b>	12:00 - 12:59	17:00 - 17:59	16:00 - 16:59
<b>PM Peak Value</b>	65	172	219
<b>Total</b>	1281	1308	2589
<b>Percentages</b>	49.48%	50.52%	100.00%

Site ID:071252000000  
 Station Name:  
 Description:CR-5 S/O CR-158  
 City:  
 County:ELBERT

7/13/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	0	2	2
01:00	0	2	2
02:00	1	1	2
03:00	2	0	2
04:00	12	0	12
05:00	39	4	43
06:00	84	14	98
07:00	92	14	106
08:00	75	19	94
09:00	39	22	61
10:00	41	25	66
11:00	34	37	71
12:00	36	27	63
13:00	33	28	61
14:00	31	42	73
15:00	43	37	80
16:00	39	68	107
17:00	31	78	109
18:00	38	76	114
19:00	17	59	76
20:00	21	36	57
21:00	11	30	41
22:00	5	20	25
23:00	2	8	10
<b>AM Peak Hour</b>	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
<b>AM Peak Value</b>	92	37	106
<b>PM Peak Hour</b>	15:00 - 15:59	17:00 - 17:59	18:00 - 18:59
<b>PM Peak Value</b>	43	78	114
<b>Total</b>	726	649	1375
<b>Percentages</b>	52.80%	47.20%	100.00%

Site ID:071268000000

Station Name:

Description:CR-158 W/O CR-13

City:

County:ELBERT

7/13/2016	Lane 1 (West)	Lane 2 (East)	All Lanes
00:00	2	7	9
01:00	0	2	2
02:00	0	1	1
03:00	1	1	2
04:00	11	2	13
05:00	37	6	43
06:00	76	5	81
07:00	110	20	130
08:00	95	27	122
09:00	55	33	88
10:00	54	28	82
11:00	42	43	85
12:00	38	44	82
13:00	38	42	80
14:00	43	55	98
15:00	37	67	104
16:00	24	99	123
17:00	27	101	128
18:00	38	74	112
19:00	24	58	82
20:00	22	40	62
21:00	11	25	36
22:00	8	18	26
23:00	2	6	8
<b>AM Peak Hour</b>	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
<b>AM Peak Value</b>	110	43	130
<b>PM Peak Hour</b>	14:00 - 14:59	17:00 - 17:59	17:00 - 17:59
<b>PM Peak Value</b>	43	101	128
<b>Total</b>	795	804	1599
<b>Percentages</b>	49.72%	50.28%	100.00%

Site ID:071265600000  
 Station Name:  
 Description:CR-13 S/O CR-158  
 City:  
 County:ELBERT

7/13/2016	Lane 1 (South)	Lane 2 (North)	All Lanes
00:00	4	4	8
01:00	1	1	2
02:00	2	2	4
03:00	2	2	4
04:00	1	26	27
05:00	15	41	56
06:00	39	60	99
07:00	79	88	167
08:00	92	108	200
09:00	88	70	158
10:00	79	77	156
11:00	84	70	154
12:00	70	74	144
13:00	66	88	154
14:00	99	70	169
15:00	94	74	168
16:00	114	95	209
17:00	139	84	223
18:00	88	96	184
19:00	66	77	143
20:00	54	39	93
21:00	22	22	44
22:00	14	11	25
23:00	12	4	16
<b>AM Peak Hour</b>	08:00 - 08:59	08:00 - 08:59	08:00 - 08:59
<b>AM Peak Value</b>	92	108	200
<b>PM Peak Hour</b>	17:00 - 17:59	18:00 - 18:59	17:00 - 17:59
<b>PM Peak Value</b>	139	96	223
<b>Total</b>	1324	1283	2607
<b>Percentages</b>	50.79%	49.21%	100.00%

Site ID:071273000000  
 Station Name:  
 Description:CR-13 N/O CR-158  
 City:  
 County:ELBERT

7/13/2016	Lane 1 (South)	Lane 2 (North)	All Lanes
00:00	2	4	6
01:00	3	4	7
02:00	4	4	8
03:00	1	4	5
04:00	2	9	11
05:00	17	38	55
06:00	32	59	91
07:00	73	87	160
08:00	89	102	191
09:00	81	69	150
10:00	74	72	146
11:00	80	77	157
12:00	72	79	151
13:00	69	81	150
14:00	95	73	168
15:00	93	74	167
16:00	112	93	205
17:00	142	82	224
18:00	89	94	183
19:00	65	72	137
20:00	47	32	79
21:00	23	26	49
22:00	15	10	25
23:00	11	3	14
<b>AM Peak Hour</b>	08:00 - 08:59	08:00 - 08:59	08:00 - 08:59
<b>AM Peak Value</b>	89	102	191
<b>PM Peak Hour</b>	17:00 - 17:59	18:00 - 18:59	17:00 - 17:59
<b>PM Peak Value</b>	142	94	224
<b>Total</b>	1291	1248	2539
<b>Percentages</b>	50.85%	49.15%	100.00%

Site ID:071251000000

Station Name:

Description:FLINTWOOD RD N/O SINGING HILLS RD

City:

County:ELBERT

7/13/2016	Lane 1 (South)	Lane 2 (North)	All Lanes
00:00	6	5	11
01:00	3	4	7
02:00	1	6	7
03:00	1	6	7
04:00	2	22	24
05:00	11	80	91
06:00	26	190	216
07:00	60	237	297
08:00	92	220	312
09:00	62	165	227
10:00	64	147	211
11:00	84	158	242
12:00	98	111	209
13:00	107	125	232
14:00	119	133	252
15:00	128	159	287
16:00	180	156	336
17:00	181	132	313
18:00	148	106	254
19:00	126	64	190
20:00	80	49	129
21:00	38	38	76
22:00	27	19	46
23:00	15	7	22
<b>AM Peak Hour</b>	08:00 - 08:59	07:00 - 07:59	08:00 - 08:59
<b>AM Peak Value</b>	92	237	312
<b>PM Peak Hour</b>	17:00 - 17:59	15:00 - 15:59	16:00 - 16:59
<b>PM Peak Value</b>	181	159	336
<b>Total</b>	1659	2339	3998
<b>Percentages</b>	41.50%	58.50%	100.00%



Site ID:071254000000

Station Name:

Description:CR-13 S/O SINGING HILLS RD

City:

County:ELBERT

7/13/2016	Lane 1 (South)	Lane 2 (North)	All Lanes
00:00	3	3	6
01:00	4	4	8
02:00	3	3	6
03:00	2	3	5
04:00	0	9	9
05:00	14	38	52
06:00	33	68	101
07:00	78	96	174
08:00	99	104	203
09:00	79	74	153
10:00	85	86	171
11:00	76	81	157
12:00	77	78	155
13:00	74	87	161
14:00	111	89	200
15:00	91	81	172
16:00	125	101	226
17:00	140	82	222
18:00	93	97	190
19:00	68	71	139
20:00	48	31	79
21:00	26	29	55
22:00	20	9	29
23:00	10	3	13
<b>AM Peak Hour</b>	08:00 - 08:59	08:00 - 08:59	08:00 - 08:59
<b>AM Peak Value</b>	99	104	203
<b>PM Peak Hour</b>	17:00 - 17:59	16:00 - 16:59	16:00 - 16:59
<b>PM Peak Value</b>	140	101	226
<b>Total</b>	1359	1327	2686
<b>Percentages</b>	50.60%	49.40%	100.00%

Site ID:071256000000

Station Name:

Description:SINGING HILLS RD E/O CR-13

City:

County:ELBERT

7/13/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	19	9	28
01:00	11	3	14
02:00	3	7	10
03:00	3	8	11
04:00	11	35	46
05:00	16	133	149
06:00	30	300	330
07:00	95	298	393
08:00	126	237	363
09:00	90	195	285
10:00	125	188	313
11:00	124	180	304
12:00	135	160	295
13:00	137	148	285
14:00	171	145	316
15:00	214	118	332
16:00	273	129	402
17:00	326	129	455
18:00	300	102	402
19:00	193	73	266
20:00	128	66	194
21:00	100	37	137
22:00	60	15	75
23:00	33	7	40
<b>AM Peak Hour</b>	08:00 - 08:59	06:00 - 06:59	07:00 - 07:59
<b>AM Peak Value</b>	126	300	393
<b>PM Peak Hour</b>	17:00 - 17:59	12:00 - 12:59	17:00 - 17:59
<b>PM Peak Value</b>	326	160	455
<b>Total</b>	2723	2722	5445
<b>Percentages</b>	50.01%	49.99%	100.00%

Site ID: 071253000000

Station Name:

Description: CR-13 N/O SINGING HILLS RD

City:

County: ELBERT

7/13/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	4	2	6
01:00	3	4	7
02:00	2	1	3
03:00	1	2	3
04:00	0	14	14
05:00	4	47	51
06:00	3	76	79
07:00	14	75	89
08:00	35	82	117
09:00	29	51	80
10:00	32	56	88
11:00	37	42	79
12:00	55	39	94
13:00	56	43	99
14:00	51	37	88
15:00	63	41	104
16:00	67	41	108
17:00	89	50	139
18:00	81	36	117
19:00	61	24	85
20:00	46	21	67
21:00	36	8	44
22:00	17	6	23
23:00	6	1	7
<b>AM Peak Hour</b>	11:00 - 11:59	08:00 - 08:59	08:00 - 08:59
<b>AM Peak Value</b>	37	82	117
<b>PM Peak Hour</b>	17:00 - 17:59	17:00 - 17:59	17:00 - 17:59
<b>PM Peak Value</b>	89	50	139
<b>Total</b>	792	799	1591
<b>Percentages</b>	49.78%	50.22%	100.00%

Site ID:071257000000

Station Name:

Description:SINGING HILLS RD E/O THUNDER HILL RD

City:

County:ELBERT

7/13/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	25	11	36
01:00	15	9	24
02:00	6	8	14
03:00	5	13	18
04:00	8	56	64
05:00	19	206	225
06:00	37	420	457
07:00	126	433	559
08:00	161	341	502
09:00	145	269	414
10:00	163	265	428
11:00	156	240	396
12:00	203	220	423
13:00	214	227	441
14:00	265	206	471
15:00	332	191	523
16:00	394	188	582
17:00	499	194	693
18:00	396	148	544
19:00	262	97	359
20:00	192	76	268
21:00	139	49	188
22:00	89	23	112
23:00	46	7	53
<b>AM Peak Hour</b>	10:00 - 10:59	07:00 - 07:59	07:00 - 07:59
<b>AM Peak Value</b>	163	433	559
<b>PM Peak Hour</b>	17:00 - 17:59	13:00 - 13:59	17:00 - 17:59
<b>PM Peak Value</b>	499	227	693
<b>Total</b>	3897	3897	7794
<b>Percentages</b>	50.00%	50.00%	100.00%

Site ID:071271000000

Station Name:

Description:SINGING HILLS RD E/O SINGING HILLS LN

City:

County:ELBERT

7/13/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	27	13	40
01:00	15	6	21
02:00	6	9	15
03:00	5	13	18
04:00	10	61	71
05:00	13	238	251
06:00	45	486	531
07:00	132	515	647
08:00	153	389	542
09:00	160	301	461
10:00	175	268	443
11:00	163	270	433
12:00	219	227	446
13:00	253	245	498
14:00	283	234	517
15:00	367	184	551
16:00	450	222	672
17:00	574	201	775
18:00	470	167	637
19:00	295	119	414
20:00	206	84	290
21:00	160	57	217
22:00	105	28	133
23:00	51	10	61
<b>AM Peak Hour</b>	10:00 - 10:59	07:00 - 07:59	07:00 - 07:59
<b>AM Peak Value</b>	175	515	647
<b>PM Peak Hour</b>	17:00 - 17:59	13:00 - 13:59	17:00 - 17:59
<b>PM Peak Value</b>	574	245	775
<b>Total</b>	4337	4347	8684
<b>Percentages</b>	49.94%	50.06%	100.00%

Site ID:071250000000

Station Name:

Description:SINGING HILLS RD E/O DELBERT RD

City:

County:ELBERT

7/13/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	29	12	41
01:00	14	7	21
02:00	7	7	14
03:00	5	15	20
04:00	12	56	68
05:00	16	247	263
06:00	61	476	537
07:00	131	538	669
08:00	153	399	552
09:00	162	308	470
10:00	177	276	453
11:00	166	272	438
12:00	235	236	471
13:00	266	260	526
14:00	284	234	518
15:00	382	188	570
16:00	480	227	707
17:00	597	235	832
18:00	482	177	659
19:00	321	125	446
20:00	222	86	308
21:00	167	59	226
22:00	115	34	149
23:00	52	10	62
<b>AM Peak Hour</b>	10:00 - 10:59	07:00 - 07:59	07:00 - 07:59
<b>AM Peak Value</b>	177	538	669
<b>PM Peak Hour</b>	17:00 - 17:59	13:00 - 13:59	17:00 - 17:59
<b>PM Peak Value</b>	597	260	832
<b>Total</b>	4536	4484	9020
<b>Percentages</b>	50.29%	49.71%	100.00%

Site ID:071262000000

Station Name:

Description:DELBERT RD N/O SINGING HILLS RD

City:

County:ELBERT

7/13/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	5	14	19
01:00	5	4	9
02:00	6	4	10
03:00	13	4	17
04:00	30	5	35
05:00	112	32	144
06:00	152	62	214
07:00	193	98	291
08:00	140	154	294
09:00	114	106	220
10:00	104	95	199
11:00	110	95	205
12:00	95	90	185
13:00	129	106	235
14:00	120	143	263
15:00	118	157	275
16:00	153	197	350
17:00	157	258	415
18:00	127	176	303
19:00	94	113	207
20:00	61	92	153
21:00	47	68	115
22:00	23	38	61
23:00	6	29	35
<b>AM Peak Hour</b>	07:00 - 07:59	08:00 - 08:59	08:00 - 08:59
<b>AM Peak Value</b>	193	154	294
<b>PM Peak Hour</b>	17:00 - 17:59	17:00 - 17:59	17:00 - 17:59
<b>PM Peak Value</b>	157	258	415
<b>Total</b>	2114	2140	4254
<b>Percentages</b>	49.69%	50.31%	100.00%

Site ID:071255000000

Station Name:

Description:SINGING HILLS RD W/O DELBERT RD

City:

County:ELBERT

7/13/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	18	13	31
01:00	15	6	21
02:00	5	5	10
03:00	6	9	15
04:00	18	45	63
05:00	25	179	204
06:00	80	415	495
07:00	133	439	572
08:00	139	390	529
09:00	161	287	448
10:00	172	249	421
11:00	159	257	416
12:00	211	215	426
13:00	243	212	455
14:00	245	215	460
15:00	335	184	519
16:00	415	200	615
17:00	479	239	718
18:00	410	160	570
19:00	282	117	399
20:00	194	89	283
21:00	135	52	187
22:00	95	27	122
23:00	33	17	50
<b>AM Peak Hour</b>	10:00 - 10:59	07:00 - 07:59	07:00 - 07:59
<b>AM Peak Value</b>	172	439	572
<b>PM Peak Hour</b>	17:00 - 17:59	17:00 - 17:59	17:00 - 17:59
<b>PM Peak Value</b>	479	239	718
<b>Total</b>	4008	4021	8029
<b>Percentages</b>	49.92%	50.08%	100.00%



Site ID:071274000000

Station Name:

Description:SINGING HILLS RD E/O HILLTOP RD

City:

County:ELBERT

7/13/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	19	11	30
01:00	13	6	19
02:00	6	3	9
03:00	2	10	12
04:00	9	50	59
05:00	8	175	183
06:00	40	408	448
07:00	91	440	531
08:00	114	355	469
09:00	137	280	417
10:00	149	255	404
11:00	143	232	375
12:00	204	205	409
13:00	230	203	433
14:00	239	194	433
15:00	318	170	488
16:00	411	175	586
17:00	458	189	647
18:00	398	142	540
19:00	285	86	371
20:00	184	67	251
21:00	141	45	186
22:00	92	25	117
23:00	33	15	48
<b>AM Peak Hour</b>	10:00 - 10:59	07:00 - 07:59	07:00 - 07:59
<b>AM Peak Value</b>	149	440	531
<b>PM Peak Hour</b>	17:00 - 17:59	12:00 - 12:59	17:00 - 17:59
<b>PM Peak Value</b>	458	205	647
<b>Total</b>	3724	3741	7465
<b>Percentages</b>	49.89%	50.11%	100.00%

Site ID:071206000000

Station Name:

Description:FLINTWOOD RD N/O SINGING HILLS RD

City:

County:ELBERT

7/13/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	2	0	2
01:00	0	1	1
02:00	1	0	1
03:00	1	3	4
04:00	0	3	3
05:00	1	10	11
06:00	2	28	30
07:00	14	44	58
08:00	30	38	68
09:00	16	20	36
10:00	15	36	51
11:00	22	19	41
12:00	21	25	46
13:00	30	26	56
14:00	41	31	72
15:00	40	33	73
16:00	30	25	55
17:00	49	27	76
18:00	27	22	49
19:00	22	12	34
20:00	19	11	30
21:00	16	4	20
22:00	9	2	11
23:00	3	2	5
<b>AM Peak Hour</b>	08:00 - 08:59	07:00 - 07:59	08:00 - 08:59
<b>AM Peak Value</b>	30	44	68
<b>PM Peak Hour</b>	17:00 - 17:59	15:00 - 15:59	17:00 - 17:59
<b>PM Peak Value</b>	49	33	76
<b>Total</b>	411	422	833
<b>Percentages</b>	49.34%	50.66%	100.00%

Site ID:071264000000

Station Name:

Description:HILLTOP RD NW/O SINGING HILLS RD

City:

County:ELBERT

7/13/2016	Lane 1 (Northwest)	Lane 2 (Southeast)	All Lanes
00:00	12	37	49
01:00	8	18	26
02:00	9	8	17
03:00	13	3	16
04:00	84	15	99
05:00	311	20	331
06:00	705	74	779
07:00	801	154	955
08:00	663	176	839
09:00	487	232	719
10:00	423	248	671
11:00	397	275	672
12:00	375	341	716
13:00	334	372	706
14:00	325	400	725
15:00	323	527	850
16:00	322	709	1031
17:00	305	748	1053
18:00	252	664	916
19:00	146	458	604
20:00	102	297	399
21:00	71	233	304
22:00	38	150	188
23:00	19	57	76
<b>AM Peak Hour</b>	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
<b>AM Peak Value</b>	801	275	955
<b>PM Peak Hour</b>	12:00 - 12:59	17:00 - 17:59	17:00 - 17:59
<b>PM Peak Value</b>	375	748	1053
<b>Total</b>	6525	6216	12741
<b>Percentages</b>	51.21%	48.79%	100.00%

# COUNTER MEASURES INC.

Location: HILLTOP RD SE/O SINGING HILLS RD  
 City:  
 County: ELBERT  
 Direction: NORTHWEST-SOUTHEAST

1889 YORK STREET  
 DENVER, COLORADO 80206  
 303-333-7409

Site Code: 071218  
 Station ID: 071218

Start Time	13-Jul-16 Wed	NW	SE	Total
12:00 AM		2	17	19
01:00		2	9	11
02:00		6	2	8
03:00		3	1	4
04:00		24	5	29
05:00		114	16	130
06:00		265	30	295
07:00		<b>356</b>	63	<b>419</b>
08:00		306	82	388
09:00		206	86	292
10:00		177	99	276
11:00		154	<b>146</b>	300
12:00 PM		<b>170</b>	138	308
01:00		140	144	284
02:00		131	172	303
03:00		164	206	370
04:00		169	280	<b>449</b>
05:00		120	<b>292</b>	412
06:00		132	266	398
07:00		67	190	257
08:00		55	126	181
09:00		35	87	122
10:00		19	64	83
11:00		5	28	33
Total		2822	2549	5371
Percent		52.5%	47.5%	
AM Peak	-	07:00	11:00	07:00
Vol.	-	356	146	419
PM Peak	-	12:00	17:00	16:00
Vol.	-	170	292	449
Grand Total		2822	2549	5371
Percent		52.5%	47.5%	
ADT	ADT 5,371		AADT 5,371	

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: SINGING HILLS RD E/O HILLTOP  
 City:  
 County: ELBERT  
 Direction: EASTBOUND-WESTBOUND

Site Code: 091301  
 Station ID: 091301

Start Time	12-Sep-16		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	18	3	10	7	18	3	*	*	*	*	15	4
01:00	*	*	*	*	3	4	6	2	7	6	*	*	*	*	5	4
02:00	*	*	*	*	5	6	3	6	6	7	*	*	*	*	5	6
03:00	*	*	*	*	3	9	4	13	3	16	*	*	*	*	3	13
04:00	*	*	*	*	5	46	9	40	6	42	*	*	*	*	7	43
05:00	*	*	*	*	18	192	18	182	13	158	*	*	*	*	16	177
06:00	*	*	*	*	65	398	84	460	69	394	*	*	*	*	73	417
07:00	*	*	*	*	116	479	131	484	144	462	*	*	*	*	130	475
08:00	*	*	*	*	104	384	105	364	112	355	*	*	*	*	107	368
09:00	*	*	*	*	138	241	122	245	141	271	*	*	*	*	134	252
10:00	*	*	*	*	124	212	142	214	142	246	*	*	*	*	136	224
11:00	*	*	*	*	150	211	193	189	188	208	*	*	*	*	177	203
12:00 PM	*	*	*	*	186	224	168	219	197	234	*	*	*	*	184	226
01:00	*	*	*	*	212	170	202	174	226	215	*	*	*	*	213	186
02:00	*	*	*	*	248	166	264	168	265	210	*	*	*	*	259	181
03:00	*	*	*	*	294	218	307	226	356	221	*	*	*	*	319	222
04:00	*	*	*	*	396	213	422	177	414	232	*	*	*	*	411	207
05:00	*	*	*	*	508	177	455	182	434	234	*	*	*	*	466	198
06:00	*	*	*	*	386	143	404	164	346	174	*	*	*	*	379	160
07:00	*	*	*	*	266	92	249	98	225	112	*	*	*	*	247	101
08:00	*	*	*	*	199	68	161	65	184	54	*	*	*	*	181	62
09:00	*	*	*	*	124	25	149	31	164	42	*	*	*	*	146	33
10:00	*	*	*	*	68	18	72	22	120	25	*	*	*	*	87	22
11:00	*	*	*	*	31	5	26	9	53	17	*	*	*	*	37	10
Lane	0	0	0	0	3667	3704	3706	3741	3833	3938	0	0	0	0	3737	3794
Day	0	0	0	0	7371	7371	7447	7447	7771	7771	0	0	0	0	7531	7531
AM Peak	-	-	-	-	11:00	07:00	11:00	07:00	11:00	07:00	-	-	-	-	11:00	07:00
Vol.	-	-	-	-	150	479	193	484	188	462	-	-	-	-	177	475
PM Peak	-	-	-	-	17:00	12:00	17:00	15:00	17:00	12:00	-	-	-	-	17:00	12:00
Vol.	-	-	-	-	508	224	455	226	434	234	-	-	-	-	466	226

Comb. Total	0	0	7371	7447	7771	0	0	7531
ADT	ADT 6,714	AADT 6,714						

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: HILLTOP RD SE/O SINGING HILL RD  
 City:  
 County: ELBERT  
 Direction: NORTHWEST-SOUTHEAST

Site Code: 091302  
 Station ID: 091302

Start Time	12-Sep-16		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NW	SE	NW	SE	NW	SE	NW	SE	NW	SE	NW	SE	NW	SE	NW	SE
12:00 AM	*	*	*	*	2	12	4	10	2	9	*	*	*	*	3	10
01:00	*	*	*	*	2	4	3	6	2	9	*	*	*	*	2	6
02:00	*	*	*	*	4	1	4	2	5	2	*	*	*	*	4	2
03:00	*	*	*	*	7	2	4	2	6	1	*	*	*	*	6	2
04:00	*	*	*	*	33	6	36	5	20	4	*	*	*	*	30	5
05:00	*	*	*	*	124	8	122	11	109	6	*	*	*	*	118	8
06:00	*	*	*	*	320	32	312	50	294	30	*	*	*	*	309	37
07:00	*	*	*	*	426	94	389	101	394	90	*	*	*	*	403	95
08:00	*	*	*	*	271	93	310	104	262	93	*	*	*	*	281	97
09:00	*	*	*	*	197	105	191	97	204	98	*	*	*	*	197	100
10:00	*	*	*	*	169	98	154	106	143	121	*	*	*	*	155	108
11:00	*	*	*	*	134	120	156	114	166	122	*	*	*	*	152	119
12:00 PM	*	*	*	*	130	134	154	111	158	121	*	*	*	*	147	122
01:00	*	*	*	*	140	112	130	138	130	161	*	*	*	*	133	137
02:00	*	*	*	*	134	164	136	172	136	182	*	*	*	*	135	173
03:00	*	*	*	*	157	228	190	232	170	218	*	*	*	*	172	226
04:00	*	*	*	*	148	318	177	276	149	388	*	*	*	*	158	327
05:00	*	*	*	*	126	302	156	308	177	426	*	*	*	*	153	345
06:00	*	*	*	*	118	260	128	252	152	344	*	*	*	*	133	285
07:00	*	*	*	*	68	163	72	160	94	206	*	*	*	*	78	176
08:00	*	*	*	*	52	137	32	120	48	128	*	*	*	*	44	128
09:00	*	*	*	*	16	78	37	90	26	117	*	*	*	*	26	95
10:00	*	*	*	*	14	54	14	76	17	64	*	*	*	*	15	65
11:00	*	*	*	*	6	26	4	36	12	46	*	*	*	*	7	36
Lane	0	0	0	0	2798	2551	2915	2579	2876	2986	0	0	0	0	2861	2704
Day	0	0	0	0	5349	5349	5494	5494	5862	5862	0	0	0	0	5565	5565
AM Peak	-	-	-	-	07:00	11:00	07:00	11:00	07:00	11:00	-	-	-	-	07:00	11:00
Vol.	-	-	-	-	426	120	389	114	394	122	-	-	-	-	403	119
PM Peak	-	-	-	-	15:00	16:00	15:00	17:00	17:00	17:00	-	-	-	-	15:00	17:00
Vol.	-	-	-	-	157	318	190	308	177	426	-	-	-	-	172	345

Comb. Total	0	0	5349	5494	5862	0	0	5565
ADT	ADT 5,568	AADT 5,568						

# COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO 80206  
303-333-7409

Location: CR-158 (HILL TOP) E/O DALEY CIR  
City:  
County: ELBERT  
Direction: WESTBOUND-EASTBOUND

Site Code: 091303  
Station ID: 091303

Start Time	12-Sep-16		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	*	*	1	5	1	5	1	6	*	*	*	*	1	5
01:00	*	*	*	*	1	4	0	2	0	2	*	*	*	*	0	3
02:00	*	*	*	*	1	1	1	2	2	2	*	*	*	*	1	2
03:00	*	*	*	*	5	2	2	2	3	1	*	*	*	*	3	2
04:00	*	*	*	*	18	5	27	3	16	2	*	*	*	*	20	3
05:00	*	*	*	*	71	1	61	4	63	5	*	*	*	*	65	3
06:00	*	*	*	*	165	14	173	19	149	18	*	*	*	*	162	17
07:00	*	*	*	*	204	35	182	40	196	46	*	*	*	*	194	40
08:00	*	*	*	*	138	39	150	39	122	46	*	*	*	*	137	41
09:00	*	*	*	*	82	34	94	48	80	42	*	*	*	*	85	41
10:00	*	*	*	*	92	41	67	52	72	58	*	*	*	*	77	50
11:00	*	*	*	*	54	56	59	48	88	63	*	*	*	*	67	56
12:00 PM	*	*	*	*	48	57	70	57	60	60	*	*	*	*	59	58
01:00	*	*	*	*	60	56	58	82	58	79	*	*	*	*	59	72
02:00	*	*	*	*	40	74	56	90	60	101	*	*	*	*	52	88
03:00	*	*	*	*	80	121	75	105	86	111	*	*	*	*	80	112
04:00	*	*	*	*	90	172	82	150	74	164	*	*	*	*	82	162
05:00	*	*	*	*	67	162	67	178	73	174	*	*	*	*	69	171
06:00	*	*	*	*	47	163	58	137	72	138	*	*	*	*	59	146
07:00	*	*	*	*	25	110	34	103	45	110	*	*	*	*	35	108
08:00	*	*	*	*	24	78	22	70	20	78	*	*	*	*	22	75
09:00	*	*	*	*	6	46	13	40	16	60	*	*	*	*	12	49
10:00	*	*	*	*	6	32	3	44	4	35	*	*	*	*	4	37
11:00	*	*	*	*	2	17	2	14	6	25	*	*	*	*	3	19
Lane	0	0	0	0	1327	1325	1357	1334	1366	1426	0	0	0	0	1348	1360
Day	0	0	0	0	2652	2652	2691	2691	2792	2792	0	0	0	0	2708	2708
AM Peak	-	-	-	-	07:00	11:00	07:00	10:00	07:00	11:00	-	-	-	-	07:00	11:00
Vol.	-	-	-	-	204	56	182	52	196	63	-	-	-	-	194	56
PM Peak	-	-	-	-	16:00	16:00	16:00	17:00	15:00	17:00	-	-	-	-	16:00	17:00
Vol.	-	-	-	-	90	172	82	178	86	174	-	-	-	-	82	171

Comb. Total                      0                      0                      2652                      2691                      2792                      0                      0                      2708

ADT                      ADT 2,712                      AADT 2,712

## LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2010

### SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

<u>LOS</u>	<u>Average Vehicle Delay</u> sec/vehicle	<u>Operational Characteristics</u>
<b>A</b>	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
<b>B</b>	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
<b>C</b>	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
<b>D</b>	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
<b>E</b>	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
<b>F</b>	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.



## LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2010

### UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	<u>Operational Characteristics</u>
A	<10 seconds	<u>Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection.</u> Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. <u>The delay could be up to 15 seconds.</u> Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. <u>Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.</u>
D	25 to 35 seconds	<u>This is the point at which a traffic signal may be warranted for this intersection.</u> The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. <u>There is a high probability that this intersection will meet traffic signal warrants.</u> The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. <u>The only remedy for these long delays is installing a traffic signal or restricting the accesses.</u> The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

HCM 2010 TWSC  
1: Flintwood Road & Singing Hills Road

Existing  
AM Peak

Intersection												
Intersection Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	70	1	32	371	2	3	1	47	3	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	77	1	35	408	2	3	1	52	3	3	29
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	410	0	0	78	0	0	577	562	77	587	561	409
Stage 1	-	-	-	-	-	-	82	82	-	479	479	-
Stage 2	-	-	-	-	-	-	495	480	-	108	82	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1149	-	-	1520	-	-	428	436	984	421	436	642
Stage 1	-	-	-	-	-	-	926	827	-	568	555	-
Stage 2	-	-	-	-	-	-	556	554	-	897	827	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1149	-	-	1520	-	-	397	422	984	388	422	642
Mov Capacity-2 Maneuver	-	-	-	-	-	-	397	422	-	388	422	-
Stage 1	-	-	-	-	-	-	924	825	-	567	538	-
Stage 2	-	-	-	-	-	-	512	537	-	847	825	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.2	0.6			9.3			11.6				
HCM LOS					A			B				
Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	884	1149	-	-	1520	-	-	578				
HCM Lane V/C Ratio	0.063	0.002	-	-	0.023	-	-	0.061				
HCM Control Delay (s)	9.3	8.139	0	-	7.425	0	-	11.6				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.203	0.006	-	-	0.071	-	-	0.194				

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 10.3

Movement	WBL	WBR	SEL	SET	NWT	NWR
Vol, veh/h	3	401	71	69	361	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	441	78	76	397	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	629	397	397	0	0
Stage 1	397	-	-	-	-
Stage 2	232	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-
Pot Capacity-1 Maneuver	446	652	1162	-	-
Stage 1	679	-	-	-	-
Stage 2	807	-	-	-	-
Time blocked-Platoon, %				-	-
Mov Capacity-1 Maneuver	416	652	1162	-	-
Mov Capacity-2 Maneuver	416	-	-	-	-
Stage 1	679	-	-	-	-
Stage 2	753	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s	21.7	4.2	0
HCM LOS	C		

Minor Lane / Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	649	1162	-
HCM Lane V/C Ratio	-	-	0.684	0.067	-
HCM Control Delay (s)	-	-	21.7	8.321	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	5.37	0.216	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 AWSC  
8: Delbert Road & Singing Hills Road

Existing  
AM Peak

Intersection

Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	49	68	0	2	354	121	0	0	0	45	1	44
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	78	0	2	407	139	0	0	0	52	1	51
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	9	14.7	0	9.3
HCM LOS	A	B	-	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	42%	0%	100%	0%
Vol Thru, %	100%	58%	74%	0%	2%
Vol Right, %	0%	0%	25%	0%	98%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	117	477	45	45
LT Vol	0	68	354	0	1
Through Vol	0	0	121	0	44
RT Vol	0	49	2	45	0
Lane Flow Rate	0	134	548	52	52
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0	0.182	0.646	0.094	0.076
Departure Headway (Hd)	5.722	4.879	4.239	6.522	5.323
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	0	733	850	547	669
Service Time	3.801	2.921	2.264	4.286	3.086
HCM Lane V/C Ratio	0	0.183	0.645	0.095	0.078
HCM Control Delay	8.8	9	14.7	10	8.5
HCM Lane LOS	N	A	B	A	A
HCM 95th-tile Q	0	0.7	4.8	0.3	0.2

Notes

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 11: Madrid Drive & Singing Hills Road

Existing  
 AM Peak

Intersection												
Intersection Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	92	0	2	433	20	6	0	0	14	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	-	400	-	850	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	105	0	2	492	23	7	0	0	16	0	19
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	492	0	0	105	0	0	620	611	105	611	611	492
Stage 1	-	-	-	-	-	-	114	114	-	497	497	-
Stage 2	-	-	-	-	-	-	506	497	-	114	114	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1071	-	-	1486	-	-	400	409	949	406	409	577
Stage 1	-	-	-	-	-	-	891	801	-	555	545	-
Stage 2	-	-	-	-	-	-	549	545	-	891	801	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1071	-	-	1486	-	-	385	407	949	404	407	577
Mov Capacity-2 Maneuver	-	-	-	-	-	-	385	407	-	404	407	-
Stage 1	-	-	-	-	-	-	887	797	-	552	544	-
Stage 2	-	-	-	-	-	-	530	544	-	887	797	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.3	0			14.5			13				
HCM LOS					B			B				
Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	385	1071	-	-	1486	-	-	483				
HCM Lane V/C Ratio	0.018	0.004	-	-	0.002	-	-	0.073				
HCM Control Delay (s)	14.5	8.376	-	-	7.426	-	-	13				
HCM Lane LOS	B	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.054	0.013	-	-	0.005	-	-	0.235				

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 14: Thunder Hills Road & Singing Hills Road

Existing  
 AM Peak

Intersection												
Intersection Delay, s/veh	1.3											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	6	93	0	0	381	1	2	0	1	0	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	102	0	0	419	1	2	0	1	0	0	58
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	420	0	0	102	0	0	563	535	102	535	534	419
Stage 1	-	-	-	-	-	-	115	115	-	419	419	-
Stage 2	-	-	-	-	-	-	448	420	-	116	115	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1139	-	-	1490	-	-	437	452	953	456	452	634
Stage 1	-	-	-	-	-	-	890	800	-	612	590	-
Stage 2	-	-	-	-	-	-	590	589	-	889	800	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1139	-	-	1490	-	-	395	449	953	453	449	634
Mov Capacity-2 Maneuver	-	-	-	-	-	-	395	449	-	453	449	-
Stage 1	-	-	-	-	-	-	884	794	-	608	590	-
Stage 2	-	-	-	-	-	-	536	589	-	882	794	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.5			0			12.4			11.3		
HCM LOS	B			B			B			B		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>				
Capacity (veh/h)	491	1139	-	-	1490	-	-	634				
HCM Lane V/C Ratio	0.007	0.006	-	-	-	-	-	0.092				
HCM Control Delay (s)	12.4	8.179	0	-	0	-	-	11.3				
HCM Lane LOS	B	A	A	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.02	0.017	-	-	0	-	-	0.302				

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 AWSC  
17: CR-13 & Singing Hills Road

Existing  
AM Peak

Intersection												
Intersection Delay, s/veh	10											
Intersection LOS	A											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	73	24	26	262	1	79	4	12	4	11	62
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	81	27	29	291	1	88	4	13	4	12	69
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.9	11.2	9.2	8.3
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	83%	100%	0%	100%	0%	5%
Vol Thru, %	4%	0%	75%	0%	100%	14%
Vol Right, %	13%	0%	25%	0%	0%	81%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	6	97	26	263	77
LT Vol	4	0	73	0	262	11
Through Vol	12	0	24	0	1	62
RT Vol	79	6	0	26	0	4
Lane Flow Rate	106	7	108	29	292	86
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.153	0.011	0.154	0.045	0.415	0.112
Departure Headway (Hd)	5.213	5.828	5.149	5.619	5.113	4.692
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	685	611	692	635	701	759
Service Time	3.269	3.591	2.912	3.372	2.866	2.75
HCM Lane V/C Ratio	0.155	0.011	0.156	0.046	0.417	0.113
HCM Control Delay	9.2	8.7	8.9	8.6	11.5	8.3
HCM Lane LOS	A	A	A	A	B	A
HCM 95th-tile Q	0.5	0	0.5	0.1	2	0.4

Notes

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	3	11	96	72	60	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	13	116	87	72	1

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	391	73	73	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	318	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	613	989	1527	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	566	989	1527	-	-	-
Mov Capacity-2 Maneuver	566	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	4.3	0
HCM LOS	A		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1527	-	852	-	-
HCM Lane V/C Ratio	0.076	-	0.02	-	-
HCM Control Delay (s)	7.551	-	9.3	-	-
HCM Lane LOS	A		A		
HCM 95th %tile Q(veh)	0.246	-	0.061	-	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



**Intersection**

Intersection Delay, s/veh 3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	12	6	1	108	0	67	0	8	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	7	1	121	0	75	0	9	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	121	0	0	20	0	0	141	141	17	145	144	121
Stage 1	-	-	-	-	-	-	17	17	-	124	124	-
Stage 2	-	-	-	-	-	-	124	124	-	21	20	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1467	-	-	1596	-	-	829	750	1062	824	747	930
Stage 1	-	-	-	-	-	-	1002	881	-	880	793	-
Stage 2	-	-	-	-	-	-	880	793	-	998	879	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1467	-	-	1596	-	-	828	749	1062	816	746	930
Mov Capacity-2 Maneuver	-	-	-	-	-	-	828	749	-	816	746	-
Stage 1	-	-	-	-	-	-	1002	881	-	880	792	-
Stage 2	-	-	-	-	-	-	879	792	-	990	879	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	9.7	0
HCM LOS			A	A

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	848	1467	-	-	1596	-	-	0
HCM Lane V/C Ratio	0.099	-	-	-	0.001	-	-	+
HCM Control Delay (s)	9.7	0	-	-	7.257	0	-	0
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.33	0	-	-	0.002	-	-	+

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	19	1	1	178	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	1	1	214	4	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	24
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1591
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1591
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.8
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	747	-	-	1591	-
HCM Lane V/C Ratio	0.005	-	-	0.001	-
HCM Control Delay (s)	9.8	-	-	7.264	0
HCM Lane LOS	A			A	A
HCM 95th %tile Q(veh)	0.015	-	-	0.002	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	6	179	216	5	22	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	199	240	6	24	59

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	351	243	0
Stage 1	243	-	-
Stage 2	108	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	646	796	-
Stage 1	797	-	-
Stage 2	916	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	634	796	-
Mov Capacity-2 Maneuver	634	-	-
Stage 1	797	-	-
Stage 2	899	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	2.3
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	634	796	1320	-
HCM Lane V/C Ratio	-	-	0.011	0.25	0.019	-
HCM Control Delay (s)	-	-	10.7	11	7.779	0
HCM Lane LOS			B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.032	0.986	0.057	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
1: Flintwood Road & Singing Hills Road

Existing  
PM Peak

Intersection												
Intersection Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	27	448	2	62	136	2	3	1	33	1	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	515	2	71	156	2	3	1	38	1	2	13
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	159	0	0	517	0	0	885	879	516	898	879	157
Stage 1	-	-	-	-	-	-	578	578	-	300	300	-
Stage 2	-	-	-	-	-	-	307	301	-	598	579	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1420	-	-	1049	-	-	266	286	559	260	286	889
Stage 1	-	-	-	-	-	-	501	501	-	709	666	-
Stage 2	-	-	-	-	-	-	703	665	-	489	501	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1420	-	-	1049	-	-	240	257	559	223	257	889
Mov Capacity-2 Maneuver	-	-	-	-	-	-	240	257	-	223	257	-
Stage 1	-	-	-	-	-	-	485	485	-	687	617	-
Stage 2	-	-	-	-	-	-	639	616	-	441	485	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.4	2.7			13			11.5				
HCM LOS					B			B				
Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	491	1420	-	-	1049	-	-	568				
HCM Lane V/C Ratio	0.087	0.022	-	-	0.068	-	-	0.028				
HCM Control Delay (s)	13	7.592	0	-	8.682	0	-	11.5				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.283	0.067	-	-	0.218	-	-	0.087				

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 5.1

Movement	WBL	WBR	SEL	SET	NWT	NWR
Vol, veh/h	3	145	471	375	136	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	153	496	395	143	5

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1529	143	143	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	1386	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	129	905	1440	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	232	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	85	905	1440	-	-	-
Mov Capacity-2 Maneuver	85	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	152	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s	11	4.9	0
HCM LOS	B		

Minor Lane / Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	757	1440	-
HCM Lane V/C Ratio	-	-	0.206	0.344	-
HCM Control Delay (s)	-	-	11	8.807	-
HCM Lane LOS			B	A	
HCM 95th %tile Q(veh)	-	-	0.769	1.555	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 AWSC  
8: Delbert Road & Singing Hills Road

Existing  
PM Peak

Intersection												
Intersection Delay, s/veh	18.8											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	405	1	0	127	59	0	0	0	164	0	66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	471	1	0	148	69	0	0	0	191	0	77
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	24.8	11	0	12.6
HCM LOS	C	B	-	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	15%	0%	100%	0%
Vol Thru, %	100%	85%	68%	0%	0%
Vol Right, %	0%	0%	32%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	476	186	164	66
LT Vol	0	405	127	0	0
Through Vol	0	1	59	0	66
RT Vol	0	70	0	164	0
Lane Flow Rate	0	553	216	191	77
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0	0.791	0.324	0.372	0.124
Departure Headway (Hd)	6.698	5.143	5.395	7.017	5.796
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	0	703	666	513	618
Service Time	4.765	3.175	3.437	4.756	3.535
HCM Lane V/C Ratio	0	0.787	0.324	0.372	0.125
HCM Control Delay	9.8	24.8	11	13.9	9.4
HCM Lane LOS	N	C	B	B	A
HCM 95th-tile Q	0	7.9	1.4	1.7	0.4

Notes

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection												
Intersection Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	541	4	2	157	11	7	0	3	24	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	-	400	-	850	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	615	5	2	178	12	8	0	3	27	0	8
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	178	0	0	619	0	0	836	832	617	834	834	178
Stage 1	-	-	-	-	-	-	649	649	-	183	183	-
Stage 2	-	-	-	-	-	-	187	183	-	651	651	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1398	-	-	961	-	-	287	305	490	288	304	865
Stage 1	-	-	-	-	-	-	458	466	-	819	748	-
Stage 2	-	-	-	-	-	-	815	748	-	457	465	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1398	-	-	961	-	-	281	301	490	283	300	865
Mov Capacity-2 Maneuver	-	-	-	-	-	-	281	301	-	283	300	-
Stage 1	-	-	-	-	-	-	453	461	-	810	746	-
Stage 2	-	-	-	-	-	-	806	746	-	449	460	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.2	0.1			16.6			17				
HCM LOS					C			C				
Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	322	1398	-	-	961	-	-	334				
HCM Lane V/C Ratio	0.035	0.011	-	-	0.002	-	-	0.105				
HCM Control Delay (s)	16.6	7.605	-	-	8.755	-	-	17				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.109	0.035	-	-	0.007	-	-	0.35				

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 14: Thunder Hills Road & Singing Hills Road

Existing  
 PM Peak

Intersection												
Intersection Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	53	489	3	1	150	4	2	0	0	5	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	62	569	3	1	174	5	2	0	0	6	0	14
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	179	0	0	572	0	0	880	875	570	873	874	177
Stage 1	-	-	-	-	-	-	694	694	-	179	179	-
Stage 2	-	-	-	-	-	-	186	181	-	694	695	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1397	-	-	1001	-	-	268	288	521	271	288	866
Stage 1	-	-	-	-	-	-	433	444	-	823	751	-
Stage 2	-	-	-	-	-	-	816	750	-	433	444	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1397	-	-	1001	-	-	250	269	521	257	269	866
Mov Capacity-2 Maneuver	-	-	-	-	-	-	250	269	-	257	269	-
Stage 1	-	-	-	-	-	-	405	415	-	770	750	-
Stage 2	-	-	-	-	-	-	802	749	-	405	415	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.7	0.1			19.5			12.3				
HCM LOS					C			B				
Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	250	1397	-	-	1001	-	-	510				
HCM Lane V/C Ratio	0.009	0.044	-	-	0.001	-	-	0.039				
HCM Control Delay (s)	19.5	7.696	0	-	8.601	0	-	12.3				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.028	0.138	-	-	0.003	-	-	0.121				

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



**Intersection**

Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	67	240	61	20	103	8	54	13	32	8	15	30
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	75	270	69	22	116	9	61	15	36	9	17	34
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.6	9.2	9.3	8.7
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	55%	100%	0%	100%	0%	15%
Vol Thru, %	13%	0%	80%	0%	93%	28%
Vol Right, %	32%	0%	20%	0%	7%	57%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	99	67	301	20	111	53
LT Vol	13	0	240	0	103	15
Through Vol	32	0	61	0	8	30
RT Vol	54	67	0	20	0	8
Lane Flow Rate	111	75	338	22	125	60
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.162	0.118	0.467	0.037	0.184	0.084
Departure Headway (Hd)	5.244	5.621	4.975	5.88	5.324	5.108
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	680	635	720	606	670	696
Service Time	3.309	3.375	2.729	3.648	3.092	3.182
HCM Lane V/C Ratio	0.163	0.118	0.469	0.036	0.187	0.086
HCM Control Delay	9.3	9.1	12.1	8.9	9.3	8.7
HCM Lane LOS	A	A	B	A	A	A
HCM 95th-tile Q	0.6	0.4	2.5	0.1	0.7	0.3

**Notes**

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	1	98	25	82	128	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	109	28	91	142	4

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	291	144	147	0	-	0
Stage 1	144	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	700	903	1435	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	686	903	1435	-	-	-
Mov Capacity-2 Maneuver	686	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1.8	0
HCM LOS	A		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1435	-	900	-	-
HCM Lane V/C Ratio	0.019	-	0.122	-	-
HCM Control Delay (s)	7.558	-	9.6	-	-
HCM Lane LOS	A		A		
HCM 95th %tile Q(veh)	0.059	-	0.416	-	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	96	72	7	24	1	23	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	105	79	8	26	1	25	0	5	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	27	0	0	185
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	1587	-	-	1390
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1587	-	-	1390
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	9.7	0
HCM LOS			A	A

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	791	1587	-	-	1390	-	-	0
HCM Lane V/C Ratio	0.039	-	-	-	0.006	-	-	+
HCM Control Delay (s)	9.7	0	-	-	7.604	0	-	0
HCM Lane LOS	A	A			A	A		A
HCM 95th %tile Q(veh)	0.121	0	-	-	0.017	-	-	+

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	168	2	1	44	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	189	2	1	49	1	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	191
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1383
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1383
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.8
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	745	-	-	1383	-
HCM Lane V/C Ratio	0.002	-	-	0.001	-
HCM Control Delay (s)	9.8	-	-	7.605	0
HCM Lane LOS	A			A	A
HCM 95th %tile Q(veh)	0.005	-	-	0.002	-

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	8	47	115	7	175	169
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	51	125	8	190	184

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	693	129	0
Stage 1	129	-	-
Stage 2	564	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	409	921	-
Stage 1	897	-	-
Stage 2	569	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	349	921	-
Mov Capacity-2 Maneuver	349	-	-
Stage 1	897	-	-
Stage 2	486	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	4
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	349	921	1452	-
HCM Lane V/C Ratio	-	-	0.025	0.055	0.131	-
HCM Control Delay (s)	-	-	15.6	9.1	7.853	0
HCM Lane LOS			C	A	A	A
HCM 95th %tile Q(veh)	-	-	0.077	0.176	0.451	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	100	3	39	535	3	5	5	58	5	10	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	109	3	42	582	3	5	5	63	5	11	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	582	0	0	109	0	0	501	786	54	734	786	291
Stage 1	-	-	-	-	-	-	120	120	-	666	666	-
Stage 2	-	-	-	-	-	-	381	666	-	68	120	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	988	-	-	1479	-	-	453	323	1002	308	323	706
Stage 1	-	-	-	-	-	-	872	796	-	415	456	-
Stage 2	-	-	-	-	-	-	613	456	-	934	796	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	988	-	-	1479	-	-	407	312	1002	278	312	706
Mov Capacity-2 Maneuver	-	-	-	-	-	-	407	312	-	278	312	-
Stage 1	-	-	-	-	-	-	868	792	-	413	443	-
Stage 2	-	-	-	-	-	-	550	443	-	865	792	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4	-	-	0.5	-	-	10	-	-	13	-	-
HCM LOS	-	-	-	-	-	-	B	-	-	B	-	-













Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	789	988	-	-	1479	-	-	502
HCM Lane V/C Ratio	0.094	0.006	-	-	0.029	-	-	0.108
HCM Control Delay (s)	10	8.664	-	-	7.506	-	-	13
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.309	0.017	-	-	0.088	-	-	0.362

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

























HCM 2010 Signalized Intersection Summary  
3: Hilltop Road & Singing Hills Road

2025 Background  
AM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	5	570	100	86	441	5
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	195	234	768	3018	2727	1159
Arrive On Green	0.11	0.11	0.04	0.81	0.73	0.73
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	5	620	109	93	479	5
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	0.3	11.0	1.4	0.5	4.0	0.1
Cycle Q Clear(g_c), s	0.3	11.0	1.4	0.5	4.0	0.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	195	234	768	3018	2727	1159
V/C Ratio(X)	0.03	2.64	0.14	0.03	0.18	0.00
Avail Cap(c_a), veh/h	195	234	984	3018	2727	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	42.6	2.6	1.9	4.1	3.6
Incr Delay (d2), s/veh	0.1	752.3	0.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	54.8	0.4	0.1	1.4	0.0
Lane Grp Delay (d), s/veh	39.8	794.8	2.6	1.9	4.3	3.6
Lane Grp LOS	D	F	A	A	A	A
Approach Vol, veh/h	625			202	484	
Approach Delay, s/veh	788.8			2.3	4.3	
Approach LOS	F			A	A	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			7.8	85.0	77.2	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			16.0	81.0	61.0	
Max Q Clear Time (g_c+I1), s			3.4	2.5	6.0	
Green Ext Time (p_c), s			0.2	3.8	3.8	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			378.0			
HCM 2010 LOS			F			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2025 Background  
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	95	5	5	510	175	5	5	5	65	5	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	505	1205	1024	900	1133	1044	184	88	75	91	174	148
Arrive On Green	0.04	0.65	0.65	0.01	0.61	0.61	0.01	0.05	0.05	0.05	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	68	103	5	5	554	190	5	5	5	71	5	59
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.8	1.3	0.1	0.1	10.6	3.0	0.2	0.2	0.2	2.5	0.2	2.3
Cycle Q Clear(g_c), s	0.8	1.3	0.1	0.1	10.6	3.0	0.2	0.2	0.2	2.5	0.2	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	505	1205	1024	900	1133	1044	184	88	75	91	174	148
V/C Ratio(X)	0.13	0.09	0.00	0.01	0.49	0.18	0.03	0.06	0.07	0.78	0.03	0.40
Avail Cap(c_a), veh/h	649	1205	1024	1112	1133	1044	479	755	642	304	755	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.6	4.2	4.0	4.8	7.0	4.2	28.9	29.2	29.2	30.1	26.4	27.4
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	1.5	0.4	0.1	0.3	0.4	13.2	0.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.2	0.4	0.0	0.0	4.2	0.8	0.1	0.1	0.1	1.4	0.1	0.9
Lane Grp Delay (d), s/veh	4.8	4.4	4.0	4.8	8.5	4.6	28.9	29.5	29.6	43.3	26.5	29.1
Lane Grp LOS	A	A	A	A	A	A	C	C	C	D	C	C
Approach Vol, veh/h		176			749			15			135	
Approach Delay, s/veh		4.5			7.5			29.3			36.5	
Approach LOS		A			A			C			D	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1		6
Phs Duration (G+Y+Rc), s	6.8	45.5		4.3	43.0		4.3	7.0		7.3		10.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s	8.0	39.0		8.0	39.0		11.0	26.0		11.0		26.0
Max Q Clear Time (g_c+I1), s	2.8	3.3		2.1	12.6		2.2	2.2		4.5		4.3
Green Ext Time (p_c), s	0.0	4.9		0.0	4.7		0.0	0.2		0.1		0.2
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			11.0									
HCM 2010 LOS			B									
<b>Notes</b>												



**Intersection**

Intersection Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	155	2	4	650	35	10	1	2	30	1	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	-	400	-	850	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	168	2	4	707	38	11	1	2	33	1	33

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	707	0	0	171
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	891	-	-	1406
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	891	-	-	1406
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	19.6	19.3
HCM LOS			C	C

**Minor Lane / Major Mvmt**

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	891	-	-	1406	-	-	318
HCM Lane V/C Ratio	0.054	0.012	-	-	0.003	-	-	0.209
HCM Control Delay (s)	19.6	9.09	-	-	7.568	-	-	19.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.171	0.037	-	-	0.009	-	-	0.771

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	180	3	2	605	10	5	1	3	10	1	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	196	3	2	658	11	5	1	3	11	1	65

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	668	0	0	199
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	922	-	-	1373
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	922	-	-	1373
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	17.7	15.7
HCM LOS			C	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	922	-	-	1373	-	-	412
HCM Lane V/C Ratio	0.033	0.012	-	-	0.002	-	-	0.187
HCM Control Delay (s)	17.7	8.951	0	-	7.626	0	-	15.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.103	0.036	-	-	0.005	-	-	0.68

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection												
Intersection Delay, s/veh	18.1											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	140	35	37	410	3	115	10	18	6	17	90
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	156	39	41	456	3	128	11	20	7	19	100
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	11.5	24.6	12.2	10.5
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	10	18	15	140	35	37	410	3	6	17
LT Vol	0	10	0	0	140	0	0	410	0	0	17
Through Vol	0	0	18	0	0	35	0	0	3	0	0
RT Vol	115	0	0	15	0	0	37	0	0	6	0
Lane Flow Rate	128	11	20	17	156	39	41	456	3	7	19
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.265	0.022	0.035	0.033	0.289	0.065	0.075	0.767	0.005	0.014	0.037
Departure Headway (Hd)	7.478	6.978	6.278	7.18	6.68	5.98	6.559	6.059	5.359	7.603	7.103
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	479	511	567	497	537	596	545	597	666	469	502
Service Time	5.249	4.749	4.049	4.944	4.444	3.744	4.309	3.809	3.109	5.378	4.878
HCM Lane V/C Ratio	0.267	0.022	0.035	0.034	0.291	0.065	0.075	0.764	0.005	0.015	0.038
HCM Control Delay	12.9	9.9	9.3	10.2	12.2	9.2	9.8	26.1	8.1	10.5	10.2
HCM Lane LOS	B	A	A	B	B	A	A	D	A	B	B
HCM 95th-tile Q	1.1	0.1	0.1	0.1	1.2	0.2	0.2	7	0	0	0.1

Notes

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	18	18	128	105	85	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	20	139	114	92	21

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	484	92	92	0	-	0
Stage 1	92	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	542	965	1503	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	492	965	1503	-	-	-
Mov Capacity-2 Maneuver	492	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	4.2	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1503	-	652	-	-
HCM Lane V/C Ratio	0.093	-	0.06	-	-
HCM Control Delay (s)	7.639	-	10.9	-	-
HCM Lane LOS	A		B		
HCM 95th %tile Q(veh)	0.305	-	0.191	-	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	25	10	5	145	0	70	5	10	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	11	5	158	0	76	5	11	0	5	0

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	158	0	0	38
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	1422	-	-	1572
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1422	-	-	1572
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	10.3	10.3
HCM LOS			B	B

**Minor Lane / Major Mvmt**

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	770	1422	-	-	1572	-	-	689	0
HCM Lane V/C Ratio	0.12	-	-	-	0.003	-	-	0.008	+
HCM Control Delay (s)	10.3	0	-	-	7.298	0	-	10.3	0
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.407	0	-	-	0.01	-	-	0.024	+

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	27	5	3	215	10	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	5	3	234	11	10

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	35
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1576
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1576
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.4
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	841	-	-	1576	-
HCM Lane V/C Ratio	0.025	-	-	0.002	-
HCM Control Delay (s)	9.4	-	-	7.289	0
HCM Lane LOS	A			A	A
HCM 95th %tile Q(veh)	0.075	-	-	0.006	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	11	214	260	7	30	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	233	283	8	33	71

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	419	283	0
Stage 1	283	-	-
Stage 2	136	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	591	756	-
Stage 1	765	-	-
Stage 2	890	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	576	756	-
Mov Capacity-2 Maneuver	576	-	-
Stage 1	765	-	-
Stage 2	867	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	2.5
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	576	756	1279	-
HCM Lane V/C Ratio	-	-	0.021	0.308	0.025	-
HCM Control Delay (s)	-	-	11.4	11.9	7.888	-
HCM Lane LOS			B	B	A	
HCM 95th %tile Q(veh)	-	-	0.064	1.307	0.078	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	31	5	5	213	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	5	5	232	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	39
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1571
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1571
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.3
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	842	-	-	1571	-
HCM Lane V/C Ratio	0.013	-	-	0.003	-
HCM Control Delay (s)	9.3	-	-	7.299	0
HCM Lane LOS	A			A	A
HCM 95th %tile Q(veh)	0.039	-	-	0.01	-

**Notes**















~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



Intersection												
Intersection Delay, s/veh	2.2											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	35	630	10	73	190	15	3	10	39	3	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	685	11	79	207	16	3	11	42	3	11	22
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	207	0	0	685	0	0	1028	1126	342	789	1126	103
Stage 1	-	-	-	-	-	-	761	761	-	365	365	-
Stage 2	-	-	-	-	-	-	267	365	-	424	761	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1361	-	-	904	-	-	188	203	654	281	203	932
Stage 1	-	-	-	-	-	-	364	412	-	627	622	-
Stage 2	-	-	-	-	-	-	715	622	-	578	412	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1361	-	-	904	-	-	160	180	654	229	180	932
Mov Capacity-2 Maneuver	-	-	-	-	-	-	160	180	-	229	180	-
Stage 1	-	-	-	-	-	-	354	400	-	609	568	-
Stage 2	-	-	-	-	-	-	625	568	-	511	400	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.4			2.5			15.9			15.9		
HCM LOS	C			A			C			C		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>				
Capacity (veh/h)	388	1361	-	-	904	-	-	366				
HCM Lane V/C Ratio	0.146	0.028	-	-	0.088	-	-	0.098				
HCM Control Delay (s)	15.9	7.721	-	-	9.365	-	-	15.9				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.505	0.086	-	-	0.288	-	-	0.323				
<b>Notes</b>												
~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined												

























HCM 2010 Signalized Intersection Summary  
3: Hilltop Road & Singing Hills Road

2025 Background  
PM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations				 	 	
Volume (veh/h)	5	205	670	451	156	7
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	195	464	1078	3018	2188	930
Arrive On Green	0.11	0.11	0.18	0.81	0.59	0.59
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	5	223	705	490	170	8
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	0.3	11.0	13.8	2.9	2.0	0.2
Cycle Q Clear(g_c), s	0.3	11.0	13.8	2.9	2.0	0.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	195	464	1078	3018	2188	930
V/C Ratio(X)	0.03	0.48	0.65	0.16	0.08	0.01
Avail Cap(c_a), veh/h	195	464	1481	3018	2188	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	29.1	3.9	2.1	8.9	8.6
Incr Delay (d2), s/veh	0.1	0.8	0.7	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	4.5	3.9	0.8	0.8	0.1
Lane Grp Delay (d), s/veh	39.8	29.9	4.5	2.2	9.0	8.6
Lane Grp LOS	D	C	A	A	A	A
Approach Vol, veh/h	228			1195	178	
Approach Delay, s/veh	30.1			3.6	9.0	
Approach LOS	C			A	A	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			22.3	85.0	62.7	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			41.0	81.0	36.0	
Max Q Clear Time (g_c+I1), s			15.8	4.9	4.0	
Green Ext Time (p_c), s			2.4	4.5	4.3	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			8.0			
HCM 2010 LOS			A			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2025 Background  
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	84	575	5	5	195	85	5	5	5	235	5	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	650	1001	851	355	922	1060	179	94	80	310	409	348
Arrive On Green	0.05	0.54	0.54	0.01	0.49	0.49	0.01	0.05	0.05	0.17	0.22	0.22
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	91	625	5	5	212	92	5	5	5	255	5	85
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.5	16.1	0.1	0.1	4.5	1.4	0.2	0.2	0.2	9.5	0.1	3.0
Cycle Q Clear(g_c), s	1.5	16.1	0.1	0.1	4.5	1.4	0.2	0.2	0.2	9.5	0.1	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	650	1001	851	355	922	1060	179	94	80	310	409	348
V/C Ratio(X)	0.14	0.62	0.01	0.01	0.23	0.09	0.03	0.05	0.06	0.82	0.01	0.24
Avail Cap(c_a), veh/h	849	1001	851	474	922	1060	454	487	414	619	839	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.4	11.1	7.4	9.9	9.9	4.0	30.8	31.1	31.1	27.4	21.0	22.2
Incr Delay (d2), s/veh	0.1	2.9	0.0	0.0	0.6	0.2	0.1	0.2	0.3	5.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.5	6.7	0.0	0.0	1.9	0.4	0.1	0.1	0.1	4.4	0.1	1.1
Lane Grp Delay (d), s/veh	6.5	14.0	7.4	9.9	10.5	4.2	30.8	31.4	31.5	32.9	21.0	22.5
Lane Grp LOS	A	B	A	A	B	A	C	C	C	C	C	C
Approach Vol, veh/h		721			309			15			345	
Approach Delay, s/veh		13.0			8.6			31.2			30.2	
Approach LOS		B			A			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	7.3	41.0		4.4	38.1		4.4	7.5		16.0	19.1	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	11.0	37.0		5.0	31.0		11.0	18.0		24.0	31.0	
Max Q Clear Time (g_c+I1), s	3.5	18.1		2.1	6.5		2.2	2.2		11.5	5.0	
Green Ext Time (p_c), s	0.1	5.1		0.0	5.5		0.0	0.2		0.6	0.3	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			16.5									
HCM 2010 LOS			B									
<b>Notes</b>												

**Intersection**

Intersection Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	780	6	4	260	20	10	1	4	50	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	-	400	-	850	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	839	7	4	283	22	11	1	4	54	1	16

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	283	0	0	845
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	1279	-	-	792
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1279	-	-	792
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	26.7	34.8
HCM LOS			D	D

**Minor Lane / Major Mvmt**

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	182	1279	-	-	792	-	-	191
HCM Lane V/C Ratio	0.09	0.025	-	-	0.005	-	-	0.376
HCM Control Delay (s)	26.7	7.888	-	-	9.571	-	-	34.8
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.291	0.078	-	-	0.017	-	-	1.627

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	750	5	3	260	12	3	1	2	10	1	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	815	5	3	283	13	3	1	2	11	1	22

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	296	0	0	821
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	1265	-	-	808
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1265	-	-	808
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	27.4	19.4
HCM LOS			D	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	167	1265	-	-	808	-	-	283
HCM Lane V/C Ratio	0.039	0.06	-	-	0.004	-	-	0.119
HCM Control Delay (s)	27.4	8.028	0	-	9.473	0	-	19.4
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.121	0.192	-	-	0.012	-	-	0.4

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh	35.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	95	575	90	31	150	12	80	19	45	12	15	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	625	98	34	163	13	87	21	49	13	16	49
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	48.4	12.6	11.7	10.7
HCM LOS	E	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	19	45	95	575	90	31	150	12	12	15
LT Vol	0	19	0	0	575	0	0	150	0	0	15
Through Vol	0	0	45	0	0	90	0	0	12	0	0
RT Vol	80	0	0	95	0	0	31	0	0	12	0
Lane Flow Rate	87	21	49	103	625	98	34	163	13	13	16
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.194	0.043	0.093	0.186	1	0.143	0.071	0.322	0.023	0.03	0.035
Departure Headway (Hd)	8.022	7.529	6.84	6.477	5.977	5.277	7.605	7.11	6.416	8.243	7.752
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	476	524	553	606	677	471	505	558	435	462
Service Time	5.757	5.265	4.576	4.227	3.727	3.027	5.345	4.849	4.156	5.987	5.496
HCM Lane V/C Ratio	0.194	0.044	0.094	0.186	1.031	0.145	0.072	0.323	0.023	0.03	0.035
HCM Control Delay	12.7	10.6	10.3	10.7	60.8	8.9	10.9	13.2	9.3	11.2	10.8
HCM Lane LOS	B	B	B	B	F	A	B	B	A	B	B
HCM 95th-tile Q	0.7	0.1	0.3	0.7	15	0.5	0.2	1.4	0.1	0.1	0.1

**Notes**

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	14	116	33	115	180	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	126	36	125	196	17

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	393	196	196	0	-	0
Stage 1	196	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	611	845	1377	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	595	845	1377	-	-	-
Mov Capacity-2 Maneuver	595	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	814	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.7	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1377	-	808	-	-
HCM Lane V/C Ratio	0.026	-	0.175	-	-
HCM Control Delay (s)	7.684	-	10.4	-	-
HCM Lane LOS	A		B		
HCM 95th %tile Q(veh)	0.08	-	0.631	-	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	135	75	10	40	0	25	5	5	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	147	82	11	43	0	27	5	5	0	5	0

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	43	0	0	228
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	1566	-	-	1340
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1566	-	-	1340
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	10.4	10.9
HCM LOS			B	B

**Minor Lane / Major Mvmt**

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	701	1566	-	-	1340	-	-	613	0
HCM Lane V/C Ratio	0.054	-	-	-	0.008	-	-	0.009	+
HCM Control Delay (s)	10.4	0	-	-	7.709	0	-	10.9	0
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.172	0	-	-	0.025	-	-	0.027	+

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	204	10	9	54	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	222	11	10	59	5	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	233
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1335
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1335
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	10
HCM LOS			B

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	726	-	-	1335	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s)	10	-	-	7.717	0
HCM Lane LOS	B			A	A
HCM 95th %tile Q(veh)	0.036	-	-	0.022	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	14	60	140	10	209	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	65	152	11	227	217

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	824	152	0
Stage 1	152	-	-
Stage 2	672	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	343	894	-
Stage 1	876	-	-
Stage 2	508	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	289	894	-
Mov Capacity-2 Maneuver	289	-	-
Stage 1	876	-	-
Stage 2	427	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	4.1
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	289	894	1429	-
HCM Lane V/C Ratio	-	-	0.053	0.073	0.159	-
HCM Control Delay (s)	-	-	18.1	9.3	7.995	-
HCM Lane LOS			C	A	A	
HCM 95th %tile Q(veh)	-	-	0.166	0.236	0.565	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	207	5	5	58	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	225	5	5	63	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	230
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1338
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1338
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.9
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	744	-	-	1338	-
HCM Lane V/C Ratio	0.015	-	-	0.004	-
HCM Control Delay (s)	9.9	-	-	7.702	0
HCM Lane LOS	A			A	A
HCM 95th %tile Q(veh)	0.044	-	-	0.012	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
1: Flintwood Road & Singing Hills Road

2025 Total  
AM Peak

Intersection

Intersection Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	100	3	55	535	3	5	5	105	5	10	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	109	3	60	582	3	5	5	114	5	11	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	582	0	0	109	0	0	536	821	54	769	821	291
Stage 1	-	-	-	-	-	-	120	120	-	701	701	-
Stage 2	-	-	-	-	-	-	416	701	-	68	120	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	988	-	-	1479	-	-	428	308	1002	291	308	706
Stage 1	-	-	-	-	-	-	872	796	-	395	439	-
Stage 2	-	-	-	-	-	-	585	439	-	934	796	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	988	-	-	1479	-	-	380	294	1002	245	294	706
Mov Capacity-2 Maneuver	-	-	-	-	-	-	380	294	-	245	294	-
Stage 1	-	-	-	-	-	-	868	792	-	393	421	-
Stage 2	-	-	-	-	-	-	517	421	-	818	792	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4	-	-	0.7	-	-	10	-	-	13.4	-	-
HCM LOS	-	-	-	-	-	-	B	-	-	B	-	-

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	852	988	-	-	1479	-	-	481
HCM Lane V/C Ratio	0.147	0.006	-	-	0.04	-	-	0.113
HCM Control Delay (s)	10	8.664	-	-	7.537	-	-	13.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.513	0.017	-	-	0.126	-	-	0.379













Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

# HCM 2010 Signalized Intersection Summary

























## 3: Hilltop Road & Singing Hills Road

2025 Total  
AM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	5	570	100	110	515	5
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	195	234	716	3018	2727	1159
Arrive On Green	0.11	0.11	0.04	0.81	0.73	0.73
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	5	620	109	120	560	5
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	0.3	11.0	1.4	0.6	4.7	0.1
Cycle Q Clear(g_c), s	0.3	11.0	1.4	0.6	4.7	0.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	195	234	716	3018	2727	1159
V/C Ratio(X)	0.03	2.64	0.15	0.04	0.21	0.00
Avail Cap(c_a), veh/h	195	234	932	3018	2727	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	42.6	2.6	1.9	4.2	3.6
Incr Delay (d2), s/veh	0.1	752.3	0.1	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	54.8	0.4	0.2	1.7	0.0
Lane Grp Delay (d), s/veh	39.8	794.8	2.7	1.9	4.4	3.6
Lane Grp LOS	D	F	A	A	A	A
Approach Vol, veh/h	625			229	565	
Approach Delay, s/veh	788.8			2.3	4.4	
Approach LOS	F			A	A	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			7.8	85.0	77.2	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			16.0	81.0	61.0	
Max Q Clear Time (g_c+I1), s			3.4	2.6	6.7	
Green Ext Time (p_c), s			0.2	4.7	4.7	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			349.5			
HCM 2010 LOS			F			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2025 Total  
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	95	5	5	510	175	5	5	5	65	5	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	512	1206	1025	886	1114	1029	186	94	80	91	180	153
Arrive On Green	0.05	0.65	0.65	0.01	0.60	0.60	0.01	0.05	0.05	0.05	0.10	0.10
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	120	103	5	5	554	190	5	5	5	71	5	76
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.3	1.3	0.1	0.1	11.1	3.1	0.2	0.2	0.2	2.6	0.2	3.0
Cycle Q Clear(g_c), s	1.3	1.3	0.1	0.1	11.1	3.1	0.2	0.2	0.2	2.6	0.2	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	512	1206	1025	886	1114	1029	186	94	80	91	180	153
V/C Ratio(X)	0.23	0.09	0.00	0.01	0.50	0.18	0.03	0.05	0.06	0.78	0.03	0.50
Avail Cap(c_a), veh/h	633	1206	1025	1094	1114	1029	476	743	631	299	743	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.0	4.3	4.1	5.1	7.5	4.5	29.1	29.5	29.5	30.6	26.7	27.9
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	1.6	0.4	0.1	0.2	0.3	13.2	0.1	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.3	0.4	0.0	0.0	4.3	0.9	0.1	0.1	0.1	1.4	0.1	1.2
Lane Grp Delay (d), s/veh	5.2	4.4	4.1	5.1	9.1	4.9	29.2	29.7	29.8	43.7	26.7	30.4
Lane Grp LOS	A	A	A	A	A	A	C	C	C	D	C	C
Approach Vol, veh/h		228			749			15			152	
Approach Delay, s/veh		4.8			8.0			29.6			36.5	
Approach LOS		A			A			C			D	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1		6
Phs Duration (G+Y+Rc), s	7.5	46.2		4.3	43.0		4.3	7.3		7.4		10.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s	8.0	39.0		8.0	39.0		11.0	26.0		11.0		26.0
Max Q Clear Time (g_c+I1), s	3.3	3.3		2.1	13.1		2.2	2.2		4.6		5.0
Green Ext Time (p_c), s	0.1	4.9		0.0	4.7		0.0	0.2		0.1		0.2
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				11.4								
HCM 2010 LOS				B								
<b>Notes</b>												

HCM 2010 TWSC  
 11: Madrid Drive & Singing Hills Road

2025 Total  
 AM Peak

Intersection

Intersection Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	155	2	4	650	35	10	1	2	30	1	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	-	400	-	850	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	168	2	4	707	38	11	1	2	33	1	33

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	707	0	0	171
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	891	-	-	1406
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	891	-	-	1406
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	19.6	19.3
HCM LOS			C	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	891	-	-	1406	-	-	318
HCM Lane V/C Ratio	0.054	0.012	-	-	0.003	-	-	0.209
HCM Control Delay (s)	19.6	9.09	-	-	7.568	-	-	19.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.171	0.037	-	-	0.009	-	-	0.771

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 14: Thunder Hills Road & Singing Hills Road

2025 Total  
 AM Peak

Intersection

Intersection Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	180	3	2	605	10	5	1	3	10	1	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	196	3	2	658	11	5	1	3	11	1	65

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	668	0	0	199
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	922	-	-	1373
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	922	-	-	1373
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	17.7	15.7
HCM LOS			C	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	922	-	-	1373	-	-	412
HCM Lane V/C Ratio	0.033	0.012	-	-	0.002	-	-	0.187
HCM Control Delay (s)	17.7	8.951	0	-	7.626	0	-	15.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.103	0.036	-	-	0.005	-	-	0.68

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



Intersection												
Intersection Delay, s/veh	18.4											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	140	35	40	410	3	115	20	25	6	20	90
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	156	39	44	456	3	128	22	28	7	22	100
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	11.6	25.4	12.1	10.6
HCM LOS	B	D	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	20	25	15	140	35	40	410	3	6	20
LT Vol	0	20	0	0	140	0	0	410	0	0	20
Through Vol	0	0	25	0	0	35	0	0	3	0	0
RT Vol	115	0	0	15	0	0	40	0	0	6	0
Lane Flow Rate	128	22	28	17	156	39	44	456	3	7	22
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.267	0.043	0.049	0.034	0.292	0.065	0.082	0.776	0.005	0.014	0.044
Departure Headway (Hd)	7.512	7.012	6.312	7.261	6.761	6.061	6.632	6.132	5.432	7.67	7.17
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	477	508	564	491	529	588	539	588	656	465	497
Service Time	5.289	4.789	4.089	5.033	4.533	3.833	4.386	3.886	3.186	5.451	4.951
HCM Lane V/C Ratio	0.268	0.043	0.05	0.035	0.295	0.066	0.082	0.776	0.005	0.015	0.044
HCM Control Delay	13	10.1	9.4	10.3	12.3	9.3	10	27	8.2	10.6	10.3
HCM Lane LOS	B	B	A	B	B	A	A	D	A	B	B
HCM 95th-tile Q	1.1	0.1	0.2	0.1	1.2	0.2	0.3	7.2	0	0	0.1

Notes

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	35	55	140	105	85	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	60	152	114	92	27

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	510	92	92	0	-	0
Stage 1	92	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	523	965	1503	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	470	965	1503	-	-	-
Mov Capacity-2 Maneuver	470	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	4.4	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1503	-	685	-	-
HCM Lane V/C Ratio	0.101	-	0.143	-	-
HCM Control Delay (s)	7.665	-	11.1	-	-
HCM Lane LOS	A		B		
HCM 95th %tile Q(veh)	0.337	-	0.496	-	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	44	25	10	5	145	18	70	5	10	54	5	132
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	-	-	300	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	27	11	5	158	20	76	5	11	59	5	143

**Major/Minor**

	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	158	0	0	38	0	0	299	296	33	304	302	158
Stage 1	-	-	-	-	-	-	128	128	-	168	168	-
Stage 2	-	-	-	-	-	-	171	168	-	136	134	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1422	-	-	1572	-	-	653	616	1041	648	611	887
Stage 1	-	-	-	-	-	-	876	790	-	834	759	-
Stage 2	-	-	-	-	-	-	831	759	-	867	785	-
Time blocked-Platoon, %		-	-		-	-						
Mov Capacity-1 Maneuver	1422	-	-	1572	-	-	528	593	1041	618	588	887
Mov Capacity-2 Maneuver	-	-	-	-	-	-	528	593	-	618	588	-
Stage 1	-	-	-	-	-	-	846	763	-	806	756	-
Stage 2	-	-	-	-	-	-	689	756	-	823	759	-

**Approach**

	EB		WB		NB		SB
HCM Control Delay, s	4.2		0.2		12.6		10.3
HCM LOS					B		B

**Minor Lane / Major Mvmt**

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	564	1422	-	-	1572	-	-	708	887
HCM Lane V/C Ratio	0.164	0.034	-	-	0.003	-	-	0.158	0.108
HCM Control Delay (s)	12.6	7.62	-	-	7.298	0	-	11	9.5
HCM Lane LOS	B	A			A	A		B	A
HCM 95th %tile Q(veh)	0.582	0.104	-	-	0.01	-	-	0.559	0.361

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	70	5	5	345	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	5	5	375	11	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	82
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1515
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1515
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.2
HCM LOS			B

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	708	-	-	1515	-
HCM Lane V/C Ratio	0.031	-	-	0.004	-
HCM Control Delay (s)	10.2	-	-	7.385	0
HCM Lane LOS	B			A	A
HCM 95th %tile Q(veh)	0.095	-	-	0.011	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 7.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	335	260	10	70	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	364	283	11	76	71

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	506	283	0
Stage 1	283	-	-
Stage 2	223	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	526	756	-
Stage 1	765	-	-
Stage 2	814	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	495	756	-
Mov Capacity-2 Maneuver	495	-	-
Stage 1	765	-	-
Stage 2	766	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	4.1
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	495	756	1279	-
HCM Lane V/C Ratio	-	-	0.044	0.482	0.059	-
HCM Control Delay (s)	-	-	12.6	14.1	7.993	-
HCM Lane LOS			B	B	A	
HCM 95th %tile Q(veh)	-	-	0.137	2.645	0.19	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	75	5	5	345	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	5	5	375	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	87
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1509
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1509
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.2
HCM LOS			B

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	703	-	-	1509	-
HCM Lane V/C Ratio	0.015	-	-	0.004	-
HCM Control Delay (s)	10.2	-	-	7.394	0
HCM Lane LOS	B			A	A
HCM 95th %tile Q(veh)	0.047	-	-	0.011	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
1: Flintwood Road & Singing Hills Road















2025 Total  
PM Peak

Intersection												
Intersection Delay, s/veh	3.1											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	35	630	10	125	190	15	3	10	70	3	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	685	11	136	207	16	3	11	76	3	11	22
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	207	0	0	685	0	0	1141	1239	342	902	1239	103
Stage 1	-	-	-	-	-	-	761	761	-	478	478	-
Stage 2	-	-	-	-	-	-	380	478	-	424	761	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1361	-	-	904	-	-	156	174	654	233	174	932
Stage 1	-	-	-	-	-	-	364	412	-	537	554	-
Stage 2	-	-	-	-	-	-	614	554	-	578	412	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1361	-	-	904	-	-	125	144	654	168	144	932
Mov Capacity-2 Maneuver	-	-	-	-	-	-	125	144	-	168	144	-
Stage 1	-	-	-	-	-	-	354	400	-	522	471	-
Stage 2	-	-	-	-	-	-	498	471	-	483	400	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.4			3.7			16.1			18.5		
HCM LOS	C			C			C			C		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>				
Capacity (veh/h)	414	1361	-	-	904	-	-	303				
HCM Lane V/C Ratio	0.218	0.028	-	-	0.15	-	-	0.118				
HCM Control Delay (s)	16.1	7.721	-	-	9.685	-	-	18.5				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.819	0.086	-	-	0.528	-	-	0.398				

Notes  
~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary  
3: Hilltop Road & Singing Hills Road

























2025 Total  
PM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations				 	 	
Volume (veh/h)	5	205	670	535	205	7
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	195	464	1038	3018	2188	930
Arrive On Green	0.11	0.11	0.18	0.81	0.59	0.59
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	5	223	705	582	223	8
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	0.3	11.0	13.8	3.5	2.6	0.2
Cycle Q Clear(g_c), s	0.3	11.0	13.8	3.5	2.6	0.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	195	464	1038	3018	2188	930
V/C Ratio(X)	0.03	0.48	0.68	0.19	0.10	0.01
Avail Cap(c_a), veh/h	195	464	1441	3018	2188	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	29.1	3.9	2.1	9.1	8.6
Incr Delay (d2), s/veh	0.1	0.8	0.8	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	4.5	3.9	0.9	1.1	0.1
Lane Grp Delay (d), s/veh	39.8	29.9	4.7	2.3	9.2	8.6
Lane Grp LOS	D	C	A	A	A	A
Approach Vol, veh/h	228			1287	231	
Approach Delay, s/veh	30.1			3.6	9.1	
Approach LOS	C			A	A	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			22.3	85.0	62.7	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			41.0	81.0	36.0	
Max Q Clear Time (g_c+I1), s			15.8	5.5	4.6	
Green Ext Time (p_c), s			2.4	5.7	5.4	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			7.8			
HCM 2010 LOS			A			
<b>Notes</b>						



HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2025 Total  
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	115	575	5	5	195	85	5	5	5	235	5	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	650	995	846	351	902	1043	182	103	87	309	418	355
Arrive On Green	0.06	0.53	0.53	0.01	0.48	0.48	0.01	0.06	0.06	0.17	0.22	0.22
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	125	625	5	5	212	92	5	5	5	255	5	141
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.0	16.3	0.1	0.1	4.6	1.5	0.2	0.2	0.2	9.6	0.1	5.3
Cycle Q Clear(g_c), s	2.0	16.3	0.1	0.1	4.6	1.5	0.2	0.2	0.2	9.6	0.1	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	650	995	846	351	902	1043	182	103	87	309	418	355
V/C Ratio(X)	0.19	0.63	0.01	0.01	0.23	0.09	0.03	0.05	0.06	0.82	0.01	0.40
Avail Cap(c_a), veh/h	834	995	846	469	902	1043	454	484	412	615	834	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.4	11.3	7.5	10.2	10.4	4.3	30.7	31.0	31.0	27.6	20.9	22.9
Incr Delay (d2), s/veh	0.1	3.0	0.0	0.0	0.6	0.2	0.1	0.2	0.3	5.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.7	7.1	0.0	0.0	1.9	0.4	0.1	0.1	0.1	4.5	0.1	2.0
Lane Grp Delay (d), s/veh	6.5	14.3	7.5	10.3	11.0	4.4	30.7	31.2	31.3	33.1	20.9	23.6
Lane Grp LOS	A	B	A	B	B	A	C	C	C	C	C	C
Approach Vol, veh/h		755			309			15			401	
Approach Delay, s/veh		13.0			9.0			31.1			29.6	
Approach LOS		B			A			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	7.8	41.0		4.4	37.6		4.4	7.8		16.1	19.5	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	11.0	37.0		5.0	31.0		11.0	18.0		24.0	31.0	
Max Q Clear Time (g_c+I1), s	4.0	18.3		2.1	6.6		2.2	2.2		11.6	7.3	
Green Ext Time (p_c), s	0.1	5.1		0.0	5.5		0.0	0.4		0.6	0.5	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				16.8								
HCM 2010 LOS				B								
<b>Notes</b>												

HCM 2010 TWSC  
 11: Madrid Drive & Singing Hills Road

2025 Total  
 PM Peak

Intersection												
Intersection Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	780	6	4	260	20	10	1	4	50	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	-	400	-	850	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	839	7	4	283	22	11	1	4	54	1	16
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	283	0	0	845	0	0	1207	1198	842	1201	1201	283
Stage 1	-	-	-	-	-	-	907	907	-	291	291	-
Stage 2	-	-	-	-	-	-	300	291	-	910	910	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1279	-	-	792	-	-	160	186	364	162	185	756
Stage 1	-	-	-	-	-	-	330	355	-	717	672	-
Stage 2	-	-	-	-	-	-	709	672	-	329	353	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1279	-	-	792	-	-	152	180	364	156	179	756
Mov Capacity-2 Maneuver	-	-	-	-	-	-	152	180	-	156	179	-
Stage 1	-	-	-	-	-	-	321	346	-	699	669	-
Stage 2	-	-	-	-	-	-	689	669	-	316	344	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			26.7			34.8		
HCM LOS	D			D			D			D		
Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	182	1279	-	-	792	-	-	191				
HCM Lane V/C Ratio	0.09	0.025	-	-	0.005	-	-	0.376				
HCM Control Delay (s)	26.7	7.888	-	-	9.571	-	-	34.8				
HCM Lane LOS	D	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	0.291	0.078	-	-	0.017	-	-	1.627				

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 14: Thunder Hills Road & Singing Hills Road

2025 Total  
 PM Peak

Intersection

Intersection Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	750	5	3	260	12	3	1	2	10	1	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	815	5	3	283	13	3	1	2	11	1	22

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	296	0	0	821
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.218
Pot Capacity-1 Maneuver	1265	-	-	808
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1265	-	-	808
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	27.4	19.4
HCM LOS			D	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	167	1265	-	-	808	-	-	283
HCM Lane V/C Ratio	0.039	0.06	-	-	0.004	-	-	0.119
HCM Control Delay (s)	27.4	8.028	0	-	9.473	0	-	19.4
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.121	0.192	-	-	0.012	-	-	0.4

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 AWSC  
17: CR-13 & Singing Hills Road

2025 Total  
PM Peak

Intersection												
Intersection Delay, s/veh	35.4											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	95	575	90	40	150	12	80	25	50	12	25	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	625	98	43	163	13	87	27	54	13	27	49
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	48.9	12.7	11.7	10.9
HCM LOS	E	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	25	50	95	575	90	40	150	12	12	25
LT Vol	0	25	0	0	575	0	0	150	0	0	25
Through Vol	0	0	50	0	0	90	0	0	12	0	0
RT Vol	80	0	0	95	0	0	40	0	0	12	0
Lane Flow Rate	87	27	54	103	625	98	43	163	13	13	27
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.195	0.057	0.104	0.189	1	0.146	0.093	0.326	0.024	0.03	0.059
Departure Headway (Hd)	8.089	7.597	6.908	6.589	6.089	5.389	7.694	7.198	6.505	8.312	7.821
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	444	472	519	543	594	663	466	501	550	431	458
Service Time	5.828	5.336	4.647	4.343	3.843	3.143	5.434	4.939	4.246	6.058	5.567
HCM Lane V/C Ratio	0.196	0.057	0.104	0.19	1.052	0.148	0.092	0.325	0.024	0.03	0.059
HCM Control Delay	12.8	10.8	10.5	10.9	61.4	9.1	11.2	13.4	9.4	11.3	11.1
HCM Lane LOS	B	B	B	B	F	A	B	B	A	B	B
HCM 95th-tile Q	0.7	0.2	0.3	0.7	14.8	0.5	0.3	1.4	0.1	0.1	0.2

Notes

- : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	140	75	115	180	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	152	82	125	196	38

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	484	196	196	0	-	0
Stage 1	196	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	542	845	1377	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	510	845	1377	-	-	-
Mov Capacity-2 Maneuver	510	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	3.1	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1377	-	769	-	-
HCM Lane V/C Ratio	0.059	-	0.233	-	-
HCM Control Delay (s)	7.779	-	11.1	-	-
HCM Lane LOS	A		B		
HCM 95th %tile Q(veh)	0.189	-	0.901	-	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	148	135	75	10	40	61	25	5	5	35	5	87
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	-	-	300	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	161	147	82	11	43	66	27	5	5	38	5	95

**Major/Minor**

	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	43	0	0	228	0	0	577	574	188	580	615	43
Stage 1	-	-	-	-	-	-	509	509	-	65	65	-
Stage 2	-	-	-	-	-	-	68	65	-	515	550	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1566	-	-	1340	-	-	428	429	854	426	407	1027
Stage 1	-	-	-	-	-	-	547	538	-	946	841	-
Stage 2	-	-	-	-	-	-	942	841	-	543	516	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1566	-	-	1340	-	-	352	381	854	383	362	1027
Mov Capacity-2 Maneuver	-	-	-	-	-	-	352	381	-	383	362	-
Stage 1	-	-	-	-	-	-	491	483	-	849	833	-
Stage 2	-	-	-	-	-	-	842	833	-	479	463	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	3.1	0.7	15.3	11.1
HCM LOS			C	B

**Minor Lane / Major Mvmt**

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	389	1566	-	-	1340	-	-	517	1027
HCM Lane V/C Ratio	0.098	0.103	-	-	0.008	-	-	0.145	0.061
HCM Control Delay (s)	15.3	7.562	-	-	7.709	0	-	13.1	8.7
HCM Lane LOS	C	A			A	A		B	A
HCM 95th %tile Q(veh)	0.323	0.343	-	-	0.025	-	-	0.504	0.196

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	350	10	10	140	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	380	11	11	152	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	391
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1168
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1168
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	11.6
HCM LOS			B

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	559	-	-	1168	-
HCM Lane V/C Ratio	0.019	-	-	0.009	-
HCM Control Delay (s)	11.6	-	-	8.111	0
HCM Lane LOS	B			A	A
HCM 95th %tile Q(veh)	0.059	-	-	0.028	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	140	140	20	345	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	152	152	22	375	217

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1119	152	0
Stage 1	152	-	-
Stage 2	967	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	229	894	-
Stage 1	876	-	-
Stage 2	369	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	169	894	-
Mov Capacity-2 Maneuver	169	-	-
Stage 1	876	-	-
Stage 2	272	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	5.3
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	169	894	1429	-
HCM Lane V/C Ratio	-	-	0.129	0.17	0.262	-
HCM Control Delay (s)	-	-	29.4	9.9	8.413	-
HCM Lane LOS			D	A	A	
HCM 95th %tile Q(veh)	-	-	0.433	0.611	1.059	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



**Intersection**

Intersection Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	355	5	5	145	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	386	5	5	158	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	391
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.218
Pot Capacity-1 Maneuver	-	-	1168
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1168
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.5
HCM LOS			B

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	561	-	-	1168	-
HCM Lane V/C Ratio	0.019	-	-	0.005	-
HCM Control Delay (s)	11.5	-	-	8.097	0
HCM Lane LOS	B			A	A
HCM 95th %tile Q(veh)	0.059	-	-	0.014	-













**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection												
Intersection Delay, s/veh	2.7											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	10	158	5	68	714	5	10	10	99	10	10	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	172	5	74	776	5	11	11	108	11	11	43
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	776	0	0	172	0	0	734	1117	86	1037	1117	388
Stage 1	-	-	-	-	-	-	193	193	-	924	924	-
Stage 2	-	-	-	-	-	-	541	924	-	113	193	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	836	-	-	1402	-	-	308	206	956	185	206	611
Stage 1	-	-	-	-	-	-	790	740	-	290	346	-
Stage 2	-	-	-	-	-	-	493	346	-	880	740	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	836	-	-	1402	-	-	260	193	956	149	193	611
Mov Capacity-2 Maneuver	-	-	-	-	-	-	260	193	-	149	193	-
Stage 1	-	-	-	-	-	-	780	730	-	286	328	-
Stage 2	-	-	-	-	-	-	419	328	-	759	730	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.5			0.7			11.6			17.7		
HCM LOS	B			C			B			C		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>NBLn2</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>	<b>SBLn2</b>		
Capacity (veh/h)	425	956	836	-	-	1402	-	-	237	611		
HCM Lane V/C Ratio	0.136	0.075	0.013	-	-	0.053	-	-	0.153	0.047		
HCM Control Delay (s)	14.8	9.1	9.363	-	-	7.711	-	-	22.9	11.2		
HCM Lane LOS	B	A	A			A			C	B		
HCM 95th %tile Q(veh)	0.466	0.243	0.04	-	-	0.167	-	-	0.53	0.149		
<b>Notes</b>												
~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined												

























HCM 2010 Signalized Intersection Summary  
3: Hilltop Road & Singing Hills Road

2036 Background  
AM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	15	749	158	119	702	15
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	2	2	2	0
Cap, veh/h	177	272	246	2980	2501	54
Arrive On Green	0.10	0.10	0.07	0.80	0.69	0.69
Sat Flow, veh/h	1774	1583	3442	3725	3633	79
Grp Volume(v), veh/h	16	788	172	129	379	376
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1863	1863	1849
Q Serve(g_s), s	0.8	10.0	4.9	0.7	8.0	8.0
Cycle Q Clear(g_c), s	0.8	10.0	4.9	0.7	8.0	8.0
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	177	272	246	2980	1283	1273
V/C Ratio(X)	0.09	2.90	0.70	0.04	0.30	0.30
Avail Cap(c_a), veh/h	177	272	551	2980	1283	1273
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	41.4	45.4	2.1	6.1	6.1
Incr Delay (d2), s/veh	0.2	865.9	3.6	0.0	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	72.0	2.2	0.2	3.2	3.1
Lane Grp Delay (d), s/veh	41.1	907.4	49.0	2.1	6.7	6.7
Lane Grp LOS	D	F	D	A	A	A
Approach Vol, veh/h	804			301	755	
Approach Delay, s/veh	890.1			28.9	6.7	
Approach LOS	F			C	A	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			11.1	85.0	73.9	
Change Period (Y+Rc), s			4.0	5.0	5.0	
Max Green Setting (Gmax), s			16.0	80.0	60.0	
Max Q Clear Time (g_c+I1), s			6.9	2.7	10.0	
Green Ext Time (p_c), s			0.3	5.8	5.7	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			392.1			
HCM 2010 LOS			F			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2036 Background  
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	114	29	11	611	271	77	99	13	99	50	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Cap, veh/h	438	2063	877	744	1898	890	315	423	180	182	408	173
Arrive On Green	0.06	0.55	0.55	0.01	0.51	0.51	0.06	0.11	0.11	0.05	0.11	0.11
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	135	120	32	12	643	295	84	108	14	108	54	109
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1721	1863	1583
Q Serve(g_s), s	2.4	1.1	0.7	0.2	7.6	7.5	3.1	2.0	0.6	2.3	1.0	4.9
Cycle Q Clear(g_c), s	2.4	1.1	0.7	0.2	7.6	7.5	3.1	2.0	0.6	2.3	1.0	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	438	2063	877	744	1898	890	315	423	180	182	408	173
V/C Ratio(X)	0.31	0.06	0.04	0.02	0.34	0.33	0.27	0.26	0.08	0.59	0.13	0.63
Avail Cap(c_a), veh/h	505	2063	877	890	1898	890	452	1249	531	462	1249	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.1	7.7	7.6	8.6	10.8	8.8	27.0	30.2	29.6	34.5	30.0	31.8
Incr Delay (d2), s/veh	0.4	0.1	0.1	0.0	0.5	1.0	0.4	0.3	0.2	3.1	0.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	0.4	0.2	0.1	3.1	2.5	1.4	0.9	0.2	1.0	0.4	2.0
Lane Grp Delay (d), s/veh	7.5	7.7	7.7	8.6	11.3	9.8	27.4	30.5	29.8	37.6	30.2	35.5
Lane Grp LOS	A	A	A	A	B	A	C	C	C	D	C	D
Approach Vol, veh/h		287			950			206			271	
Approach Delay, s/veh		7.6			10.8			29.2			35.3	
Approach LOS		A			B			C			D	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	9.2	46.3		5.9	43.0		9.2	13.5		8.9	13.2	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	7.0	38.0		7.0	38.0		10.0	25.0		10.0	25.0	
Max Q Clear Time (g_c+I1), s	4.4	3.1		2.2	9.6		5.1	4.0		4.3	6.9	
Green Ext Time (p_c), s	0.1	6.6		0.0	6.4		0.1	1.3		0.1	1.3	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				16.4								
HCM 2010 LOS				B								
<b>Notes</b>												

Intersection												
Intersection Delay, s/veh	1.7											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	15	198	12	5	841	40	17	2	8	30	2	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	208	13	5	885	43	18	2	9	33	2	38
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	885	0	0	208	0	0	696	1137	104	1034	1137	443
Stage 1	-	-	-	-	-	-	241	241	-	896	896	-
Stage 2	-	-	-	-	-	-	455	896	-	138	241	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	760	-	-	1360	-	-	328	200	931	186	200	562
Stage 1	-	-	-	-	-	-	741	705	-	301	357	-
Stage 2	-	-	-	-	-	-	554	357	-	851	705	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	760	-	-	1360	-	-	298	195	931	179	195	562
Mov Capacity-2 Maneuver	-	-	-	-	-	-	298	195	-	179	195	-
Stage 1	-	-	-	-	-	-	725	690	-	295	356	-
Stage 2	-	-	-	-	-	-	511	356	-	823	690	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.7			0			15.9			20.9		
HCM LOS	C			C			C			C		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>NBLn2</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>	<b>SBLn2</b>		
Capacity (veh/h)	309	931	760	-	-	1360	-	-	220	562		
HCM Lane V/C Ratio	0.076	0.006	0.021	-	-	0.004	-	-	0.216	0.045		
HCM Control Delay (s)	17.6	8.9	9.841	-	-	7.658	-	-	25.8	11.7		
HCM Lane LOS	C	A	A	-	-	A	-	-	D	B		
HCM 95th %tile Q(veh)	0.246	0.019	0.066	-	-	0.012	-	-	0.796	0.141		

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	221	5	3	801	5	10	2	5	15	2	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	233	5	3	843	5	11	2	5	16	2	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	843	0	0	233	0	0	694	1115	116	1000	1115	422
Stage 1	-	-	-	-	-	-	265	265	-	850	850	-
Stage 2	-	-	-	-	-	-	429	850	-	150	265	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	789	-	-	1332	-	-	329	207	914	197	207	580
Stage 1	-	-	-	-	-	-	717	688	-	322	375	-
Stage 2	-	-	-	-	-	-	574	375	-	837	688	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	789	-	-	1332	-	-	276	202	914	191	202	580
Mov Capacity-2 Maneuver	-	-	-	-	-	-	276	202	-	191	202	-
Stage 1	-	-	-	-	-	-	702	674	-	315	374	-
Stage 2	-	-	-	-	-	-	489	374	-	813	674	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6	-	-	0	-	-	16.5	-	-	14.7	-	-
HCM LOS	-	-	-	-	-	-	C	-	-	B	-	-

























Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	285	914	789	-	-	1332	-	-	319	580
HCM Lane V/C Ratio	0.052	0.004	0.021	-	-	0.002	-	-	0.143	0.094
HCM Control Delay (s)	18.3	9	9.659	-	-	7.709	-	-	18.2	11.8
HCM Lane LOS	C	A	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.164	0.012	0.063	-	-	0.007	-	-	0.494	0.309

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined













HCM 2010 Signalized Intersection Summary  
17: CR-13 & Singing Hills Road

2036 Background  
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	152	75	50	501	10	170	13	26	10	29	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	416	1525	807	589	1599	679	394	378	321	268	209	198
Arrive On Green	0.01	0.45	0.45	0.04	0.48	0.48	0.11	0.23	0.23	0.01	0.12	0.12
Sat Flow, veh/h	1597	3353	1425	1597	3353	1425	1597	1676	1425	1597	1676	1425
Grp Volume(v), veh/h	15	165	82	54	527	11	185	14	28	11	32	136
Grp Sat Flow(s),veh/h/ln	1597	1676	1425	1597	1676	1425	1597	1676	1425	1597	1676	1425
Q Serve(g_s), s	0.4	2.1	1.9	1.3	7.2	0.3	6.1	0.5	1.1	0.4	1.3	6.7
Cycle Q Clear(g_c), s	0.4	2.1	1.9	1.3	7.2	0.3	6.1	0.5	1.1	0.4	1.3	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	416	1525	807	589	1599	679	394	378	321	268	209	198
V/C Ratio(X)	0.04	0.11	0.10	0.09	0.33	0.02	0.47	0.04	0.09	0.04	0.15	0.69
Avail Cap(c_a), veh/h	502	1525	807	683	1599	679	564	754	641	403	548	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	11.5	7.3	9.1	11.9	10.1	17.7	22.2	22.5	27.6	28.7	30.1
Incr Delay (d2), s/veh	0.0	0.1	0.3	0.1	0.6	0.0	0.9	0.0	0.1	0.1	0.3	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	0.8	0.6	0.4	2.5	0.1	2.2	0.2	0.4	0.2	0.5	2.4
Lane Grp Delay (d), s/veh	10.7	11.6	7.6	9.2	12.5	10.2	18.6	22.2	22.6	27.7	29.0	34.2
Lane Grp LOS	B	B	A	A	B	B	B	C	C	C	C	C
Approach Vol, veh/h		262			592			227			179	
Approach Delay, s/veh		10.3			12.1			19.3			32.9	
Approach LOS		B			B			B			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	6.1	38.4		7.7	40.0		13.2	21.6		5.8	14.2	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	5.0	33.0		7.0	35.0		16.0	33.0		7.0	24.0	
Max Q Clear Time (g_c+I1), s	2.4	4.1		3.3	9.2		8.1	3.1		2.4	8.7	
Green Ext Time (p_c), s	0.0	4.7		0.0	4.6		0.3	0.7		0.0	0.6	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				16.0								
HCM 2010 LOS				B								
<b>Notes</b>												

HCM 2010 Signalized Intersection Summary  
20: CR-13 & Hilltop Road

2036 Background  
AM Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	39	36	172	160	125	38
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	76	148	1053	3181	2799	1190
Arrive On Green	0.04	0.04	0.05	0.85	0.25	0.25
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	42	39	187	174	136	41
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	1.8	1.8	1.6	0.6	2.1	1.5
Cycle Q Clear(g_c), s	1.8	1.8	1.6	0.6	2.1	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	76	148	1053	3181	2799	1190
V/C Ratio(X)	0.55	0.26	0.18	0.05	0.05	0.03
Avail Cap(c_a), veh/h	597	613	1216	3181	2799	1190
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	32.6	1.4	0.9	8.0	7.8
Incr Delay (d2), s/veh	6.2	0.9	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.9	0.0	0.1	0.0	0.6	0.3
Lane Grp Delay (d), s/veh	42.5	33.5	1.5	0.9	8.1	7.9
Lane Grp LOS	D	C	A	A	A	A
Approach Vol, veh/h	81			361	177	
Approach Delay, s/veh	38.2			1.2	8.0	
Approach LOS	D			A	A	
<b>Timer</b>						
Assigned Phs			5	2	6	
Phs Duration (G+Y+Rc), s			7.9	70.0	62.1	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			11.0	66.0	51.0	
Max Q Clear Time (g_c+I1), s			3.6	2.6	4.1	
Green Ext Time (p_c), s			0.3	2.0	2.0	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			8.0			
HCM 2010 LOS			A			
<b>Notes</b>						



**Intersection**

Intersection Delay, s/veh 4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	29	15	15	180	35	75	40	25	16	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	100	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	95	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	32	16	16	196	38	82	43	27	17	22	0

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	196	0	0	32
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.22	-	-	2.22
Pot Capacity-1 Maneuver	1374	-	-	1579
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1374	-	-	1579
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	10.8	11.1
HCM LOS			B	B

**Minor Lane / Major Mvmt**

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	721	1059	1374	-	-	1579	-	-	624	0
HCM Lane V/C Ratio	0.186	0.017	-	-	-	0.01	-	-	0.062	+
HCM Control Delay (s)	11.1	8.5	0	-	-	7.304	-	-	11.1	0
HCM Lane LOS	B	A	A			A			B	A
HCM 95th %tile Q(veh)	0.679	0.052	0	-	-	0.031	-	-	0.197	+

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	33	5	5	260	10	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	5	5	283	11	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	36
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.22
Pot Capacity-1 Maneuver	-	-	1573
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1573
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.4
HCM LOS			A













Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	831	-	-	1573	-
HCM Lane V/C Ratio	0.017	-	-	0.003	-
HCM Control Delay (s)	9.4	-	-	7.297	-
HCM Lane LOS	A			A	
HCM 95th %tile Q(veh)	0.052	-	-	0.01	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary  
 29: Flintwood Road & Hilltop Road

2036 Background  
 AM Peak

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	14	271	474	20	39	119
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1
Cap, veh/h	367	377	1119	951	540	1277
Arrive On Green	0.21	0.21	0.60	0.60	0.03	0.69
Sat Flow, veh/h	1774	1583	1863	1583	1774	1863
Grp Volume(v), veh/h	15	285	515	22	42	129
Grp Sat Flow(s),veh/h/ln	1774	1583	1863	1583	1774	1863
Q Serve(g_s), s	0.5	12.4	11.3	0.4	0.6	1.7
Cycle Q Clear(g_c), s	0.5	12.4	11.3	0.4	0.6	1.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	367	377	1119	951	540	1277
V/C Ratio(X)	0.04	0.76	0.46	0.02	0.08	0.10
Avail Cap(c_a), veh/h	978	922	1119	951	675	1277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	26.3	8.2	6.0	5.7	3.9
Incr Delay (d2), s/veh	0.0	3.1	1.4	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.2	4.9	4.6	0.1	0.2	0.6
Lane Grp Delay (d), s/veh	23.6	29.5	9.6	6.1	5.8	4.1
Lane Grp LOS	C	C	A	A	A	A
Approach Vol, veh/h	300		537			171
Approach Delay, s/veh	29.2		9.4			4.5
Approach LOS	C		A			A
<b>Timer</b>						
Assigned Phs			2		1	6
Phs Duration (G+Y+Rc), s			48.7		6.3	55.0
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			39.0		8.0	51.0
Max Q Clear Time (g_c+I1), s			13.3		2.6	3.7
Green Ext Time (p_c), s			3.9		0.0	4.1
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			14.5			
HCM 2010 LOS			B			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	31	5	5	251	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	5	5	273	11	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	34
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.22
Pot Capacity-1 Maneuver	-	-	1576
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1576
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	788	1058	-	-	1576	-
HCM Lane V/C Ratio	0.014	0.01	-	-	0.003	-
HCM Control Delay (s)	9.6	8.4	-	-	7.292	-
HCM Lane LOS	A	A			A	
HCM 95th %tile Q(veh)	0.042	0.031	-	-	0.01	-













**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection												
Intersection Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	664	10	133	292	10	5	10	73	5	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	699	11	145	307	11	5	11	79	5	11	22
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	307	0	0	699	0	0	1234	1382	349	1038	1382	154
Stage 1	-	-	-	-	-	-	786	786	-	596	596	-
Stage 2	-	-	-	-	-	-	448	596	-	442	786	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1250	-	-	893	-	-	133	143	647	185	143	864
Stage 1	-	-	-	-	-	-	351	401	-	457	490	-
Stage 2	-	-	-	-	-	-	560	490	-	564	401	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1250	-	-	893	-	-	103	116	647	129	116	864
Mov Capacity-2 Maneuver	-	-	-	-	-	-	103	116	-	129	116	-
Stage 1	-	-	-	-	-	-	339	387	-	441	410	-
Stage 2	-	-	-	-	-	-	445	410	-	464	387	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			3.1			17			22.6		
HCM LOS	C			C			C			C		
Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	228	647	1250	-	-	893	-	-	163	864		
HCM Lane V/C Ratio	0.188	0.082	0.035	-	-	0.162	-	-	0.144	0.017		
HCM Control Delay (s)	24.4	11.1	7.984	-	-	9.808	-	-	30.8	9.2		
HCM Lane LOS	C	B	A	-	-	A	-	-	D	A		
HCM 95th %tile Q(veh)	0.673	0.266	0.108	-	-	0.576	-	-	0.493	0.051		
Notes												
~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined												

























HCM 2010 Signalized Intersection Summary  
3: Hilltop Road & Singing Hills Road

2036 Background  
PM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	15	292	709	726	244	15
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	2	2	2	0
Cap, veh/h	177	561	876	2980	1759	106
Arrive On Green	0.10	0.10	0.25	0.80	0.51	0.51
Sat Flow, veh/h	1774	1583	3442	3725	3480	209
Grp Volume(v), veh/h	16	307	746	764	141	140
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1863	1863	1826
Q Serve(g_s), s	0.8	10.0	20.6	5.2	4.1	4.1
Cycle Q Clear(g_c), s	0.8	10.0	20.6	5.2	4.1	4.1
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	177	561	876	2980	942	923
V/C Ratio(X)	0.09	0.55	0.85	0.26	0.15	0.15
Avail Cap(c_a), veh/h	177	561	1755	2980	942	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	25.8	35.5	2.5	13.2	13.2
Incr Delay (d2), s/veh	0.2	1.1	2.5	0.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	6.0	9.0	1.5	1.8	1.8
Lane Grp Delay (d), s/veh	41.1	27.0	37.9	2.7	13.6	13.6
Lane Grp LOS	D	C	D	A	B	B
Approach Vol, veh/h	323			1510	281	
Approach Delay, s/veh	27.7			20.1	13.6	
Approach LOS	C			C	B	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			29.4	85.0	55.6	
Change Period (Y+Rc), s			4.0	5.0	5.0	
Max Green Setting (Gmax), s			51.0	80.0	25.0	
Max Q Clear Time (g_c+I1), s			22.6	7.2	6.1	
Green Ext Time (p_c), s			2.8	7.8	6.2	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			20.4			
HCM 2010 LOS			C			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2036 Background  
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	149	506	87	13	222	147	69	59	10	371	101	149
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Cap, veh/h	617	1842	783	449	1634	940	260	231	98	535	614	261
Arrive On Green	0.07	0.49	0.49	0.01	0.44	0.44	0.05	0.06	0.06	0.16	0.16	0.16
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	162	533	95	14	234	160	75	64	11	403	110	162
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1721	1863	1583
Q Serve(g_s), s	3.1	6.1	2.3	0.3	2.7	3.3	2.8	1.2	0.5	8.2	1.9	6.9
Cycle Q Clear(g_c), s	3.1	6.1	2.3	0.3	2.7	3.3	2.8	1.2	0.5	8.2	1.9	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	617	1842	783	449	1634	940	260	231	98	535	614	261
V/C Ratio(X)	0.26	0.29	0.12	0.03	0.14	0.17	0.29	0.28	0.11	0.75	0.18	0.62
Avail Cap(c_a), veh/h	738	1842	783	522	1634	940	411	870	370	1087	1535	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	10.9	9.9	11.0	12.2	6.7	29.8	32.6	32.3	29.4	26.2	28.3
Incr Delay (d2), s/veh	0.2	0.4	0.3	0.0	0.2	0.4	0.6	0.6	0.5	2.2	0.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.1	2.5	0.8	0.1	1.1	1.1	1.3	0.6	0.2	3.5	0.8	2.7
Lane Grp Delay (d), s/veh	7.9	11.3	10.2	11.1	12.4	7.1	30.4	33.2	32.8	31.6	26.3	30.7
Lane Grp LOS	A	B	B	B	B	A	C	C	C	C	C	C
Approach Vol, veh/h		790			408			150			675	
Approach Delay, s/veh		10.4			10.3			31.8			30.5	
Approach LOS		B			B			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	10.0	41.0		6.0	36.9		8.8	9.5		16.3	17.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	10.0	36.0		4.0	30.0		10.0	17.0		23.0	30.0	
Max Q Clear Time (g_c+I1), s	5.1	8.1		2.3	5.3		4.8	3.2		10.2	8.9	
Green Ext Time (p_c), s	0.2	5.9		0.0	5.8		0.1	1.3		1.2	1.5	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									
<b>Notes</b>												

Intersection												
Intersection Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	840	16	8	353	25	20	2	14	50	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	0	400	-	850	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	884	17	9	372	27	22	2	15	54	2	16
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	884	0	0	1153	1338	442	897	1338	186
Stage 1	-	-	-	-	-	-	949	949	-	389	389	-
Stage 2	-	-	-	-	-	-	204	389	-	508	949	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1183	-	-	761	-	-	152	152	563	235	152	824
Stage 1	-	-	-	-	-	-	280	337	-	606	607	-
Stage 2	-	-	-	-	-	-	779	607	-	516	337	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1183	-	-	761	-	-	143	146	563	219	146	824
Mov Capacity-2 Maneuver	-	-	-	-	-	-	143	146	-	219	146	-
Stage 1	-	-	-	-	-	-	272	328	-	589	600	-
Stage 2	-	-	-	-	-	-	752	600	-	485	328	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			26.2			23.8		
HCM LOS	D			D			D			C		
Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	165	563	1183	-	-	761	-	-	230	824		
HCM Lane V/C Ratio	0.176	0.018	0.028	-	-	0.011	-	-	0.269	0.013		
HCM Control Delay (s)	31.4	11.5	8.129	-	-	9.785	-	-	26.3	9.4		
HCM Lane LOS	D	B	A	-	-	A	-	-	D	A		
HCM 95th %tile Q(veh)	0.617	0.055	0.085	-	-	0.035	-	-	1.053	0.04		
Notes												
~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined												



**Intersection**

Intersection Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	75	819	10	5	356	10	5	2	3	10	2	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	862	11	5	375	11	5	2	3	11	2	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	375	0	0	862	0	0	1224	1411	431	981	1411	187
Stage 1	-	-	-	-	-	-	1025	1025	-	386	386	-
Stage 2	-	-	-	-	-	-	199	386	-	595	1025	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1180	-	-	776	-	-	135	137	573	204	137	823
Stage 1	-	-	-	-	-	-	252	311	-	609	609	-
Stage 2	-	-	-	-	-	-	784	609	-	458	311	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1180	-	-	776	-	-	121	127	573	189	127	823
Mov Capacity-2 Maneuver	-	-	-	-	-	-	121	127	-	189	127	-
Stage 1	-	-	-	-	-	-	234	289	-	567	605	-
Stage 2	-	-	-	-	-	-	751	605	-	421	289	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7	-	-	0.1	-	-	28.9	-	-	15.4	-	-
HCM LOS	-	-	-	-	-	-	D	-	-	C	-	-

























Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	136	573	1180	-	-	776	-	-	258	823
HCM Lane V/C Ratio	0.064	0.004	0.069	-	-	0.007	-	-	0.086	0.022
HCM Control Delay (s)	33.3	11.3	8.277	-	-	9.672	-	-	20.3	9.5
HCM Lane LOS	D	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.202	0.011	0.222	-	-	0.021	-	-	0.278	0.067

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined













HCM 2010 Signalized Intersection Summary  
 17: CR-13 & Singing Hills Road

2036 Background  
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	131	568	135	38	189	20	125	32	44	20	25	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	824	2211	1076	522	2109	896	324	251	214	224	127	201
Arrive On Green	0.06	0.59	0.59	0.03	0.57	0.57	0.09	0.13	0.13	0.02	0.07	0.07
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	142	598	147	41	205	22	136	35	48	22	27	62
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.2	5.6	2.4	0.7	1.8	0.4	4.5	1.2	2.0	0.8	1.0	2.6
Cycle Q Clear(g_c), s	2.2	5.6	2.4	0.7	1.8	0.4	4.5	1.2	2.0	0.8	1.0	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	824	2211	1076	522	2109	896	324	251	214	224	127	201
V/C Ratio(X)	0.17	0.27	0.14	0.08	0.10	0.02	0.42	0.14	0.22	0.10	0.21	0.31
Avail Cap(c_a), veh/h	1235	2211	1076	663	2109	896	513	746	634	287	488	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.9	7.1	4.1	6.1	7.2	6.9	22.6	27.6	28.0	30.5	31.9	28.8
Incr Delay (d2), s/veh	0.1	0.3	0.3	0.1	0.1	0.1	0.9	0.2	0.5	0.2	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.7	2.2	0.6	0.2	0.7	0.1	1.9	0.5	0.7	0.4	0.5	1.0
Lane Grp Delay (d), s/veh	5.0	7.4	4.4	6.2	7.3	7.0	23.5	27.9	28.5	30.7	32.7	29.6
Lane Grp LOS	A	A	A	A	A	A	C	C	C	C	C	C
Approach Vol, veh/h		887			268			219			111	
Approach Delay, s/veh		6.5			7.1			25.3			30.6	
Approach LOS		A			A			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	8.2	47.0		6.2	45.0		10.3	13.8		5.4	8.9	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	21.0	43.0		8.0	30.0		14.0	29.0		4.0	19.0	
Max Q Clear Time (g_c+I1), s	4.2	7.6		2.7	3.8		6.5	4.0		2.8	4.6	
Green Ext Time (p_c), s	0.3	6.1		0.0	5.8		0.2	0.6		0.0	0.5	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				11.2								
HCM 2010 LOS				B								
<b>Notes</b>												

HCM 2010 Signalized Intersection Summary  
20: CR-13 & Hilltop Road

2036 Background  
PM Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	41	169	47	165	175	28
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	245	271	939	2864	2568	1091
Arrive On Green	0.14	0.14	0.03	0.77	1.00	1.00
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	45	184	51	179	190	30
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	1.9	9.4	0.6	1.0	0.0	0.0
Cycle Q Clear(g_c), s	1.9	9.4	0.6	1.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	245	271	939	2864	2568	1091
V/C Ratio(X)	0.18	0.68	0.05	0.06	0.07	0.03
Avail Cap(c_a), veh/h	537	531	1108	2864	2568	1091
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	33.4	2.9	2.4	0.0	0.0
Incr Delay (d2), s/veh	0.4	3.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	0.2	0.2	0.2	0.0	0.0
Lane Grp Delay (d), s/veh	33.1	36.4	2.9	2.5	0.1	0.0
Lane Grp LOS	C	D	A	A	A	A
Approach Vol, veh/h	229			230	220	
Approach Delay, s/veh	35.7			2.6	0.1	
Approach LOS	D			A	A	
<b>Timer</b>						
Assigned Phs			5	2	6	
Phs Duration (G+Y+Rc), s			6.8	70.0	63.2	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			11.0	66.0	51.0	
Max Q Clear Time (g_c+I1), s			2.6	3.0	2.0	
Green Ext Time (p_c), s			0.0	2.3	2.3	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			12.9			
HCM 2010 LOS			B			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	184	75	25	58	17	25	30	15	37	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	0	150	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	95	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	200	82	27	63	18	27	33	16	39	49	0

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	63	0	0	200
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.22	-	-	2.22
Pot Capacity-1 Maneuver	1538	-	-	1370
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1538	-	-	1370
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB	SB
HCM Control Delay, s	0	1.9	11.4	11.9
HCM LOS			B	B

**Minor Lane / Major Mvmt**

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	598	936	1538	-	-	1370	-	-	613	0
HCM Lane V/C Ratio	0.109	0.012	-	-	-	0.02	-	-	0.143	+
HCM Control Delay (s)	11.8	8.9	0	-	-	7.681	-	-	11.9	0
HCM Lane LOS	B	A	A			A			B	A
HCM 95th %tile Q(veh)	0.365	0.035	0	-	-	0.061	-	-	0.498	+

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	252	10	2	77	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	11	2	84	5	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	274
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.22
Pot Capacity-1 Maneuver	-	-	1286
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1286
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10
HCM LOS			B













Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	735	-	-	1286	-
HCM Lane V/C Ratio	0.013	-	-	0.002	-
HCM Control Delay (s)	10	-	-	7.804	-
HCM Lane LOS	B			A	
HCM 95th %tile Q(veh)	0.04	-	-	0.005	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary  
 29: Flintwood Road & Hilltop Road

2036 Background  
 PM Peak

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	18	74	248	12	265	369
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1
Cap, veh/h	115	202	1376	1170	950	1577
Arrive On Green	0.06	0.06	0.74	0.74	0.06	0.85
Sat Flow, veh/h	1774	1583	1863	1583	1774	1863
Grp Volume(v), veh/h	20	80	270	13	288	401
Grp Sat Flow(s),veh/h/ln	1774	1583	1863	1583	1774	1863
Q Serve(g_s), s	1.0	4.2	4.0	0.2	3.1	3.8
Cycle Q Clear(g_c), s	1.0	4.2	4.0	0.2	3.1	3.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	115	202	1376	1170	950	1577
V/C Ratio(X)	0.17	0.40	0.20	0.01	0.30	0.25
Avail Cap(c_a), veh/h	316	382	1376	1170	1154	1577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	36.0	3.6	3.1	1.9	1.4
Incr Delay (d2), s/veh	0.7	1.3	0.3	0.0	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	0.1	1.4	0.1	0.7	0.8
Lane Grp Delay (d), s/veh	40.5	37.2	3.9	3.1	2.1	1.7
Lane Grp LOS	D	D	A	A	A	A
Approach Vol, veh/h	100		283			689
Approach Delay, s/veh	37.9		3.9			1.9
Approach LOS	D		A			A
<b>Timer</b>						
Assigned Phs			2		1	6
Phs Duration (G+Y+Rc), s			70.3		9.7	80.0
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			56.0		16.0	76.0
Max Q Clear Time (g_c+I1), s			6.0		5.1	5.8
Green Ext Time (p_c), s			4.1		0.6	4.1
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			5.8			
HCM 2010 LOS			A			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	246	10	10	76	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	11	11	83	5	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	267
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.22
Pot Capacity-1 Maneuver	-	-	1294
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1294
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.9
HCM LOS			A

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	634	890	-	-	1294	-
HCM Lane V/C Ratio	0.009	0.006	-	-	0.008	-
HCM Control Delay (s)	10.7	9.1	-	-	7.806	-
HCM Lane LOS	B	A			A	
HCM 95th %tile Q(veh)	0.026	0.018	-	-	0.025	-

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
1: Flintwood Road & Singing Hills Road

2036 Total  
AM Peak

Intersection												
Intersection Delay, s/veh	2.7											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	10	200	5	70	840	5	10	10	100	10	10	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	217	5	76	913	5	11	11	109	11	11	43
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	913	0	0	217	0	0	853	1304	109	1201	1304	457
Stage 1	-	-	-	-	-	-	239	239	-	1065	1065	-
Stage 2	-	-	-	-	-	-	614	1065	-	136	239	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	742	-	-	1350	-	-	253	159	924	140	159	551
Stage 1	-	-	-	-	-	-	743	706	-	238	297	-
Stage 2	-	-	-	-	-	-	446	297	-	853	706	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	742	-	-	1350	-	-	208	148	924	110	148	551
Mov Capacity-2 Maneuver	-	-	-	-	-	-	208	148	-	110	148	-
Stage 1	-	-	-	-	-	-	732	696	-	234	280	-
Stage 2	-	-	-	-	-	-	373	280	-	730	696	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.5			0.6			12.8			21.7		
HCM LOS	C			A			B			C		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>NBLn2</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>	<b>SBLn2</b>		
Capacity (veh/h)	352	924	742	-	-	1350	-	-	182	551		
HCM Lane V/C Ratio	0.165	0.078	0.015	-	-	0.056	-	-	0.199	0.053		
HCM Control Delay (s)	17.2	9.2	9.924	-	-	7.826	-	-	29.6	11.9		
HCM Lane LOS	C	A	A			A			D	B		
HCM 95th %tile Q(veh)	0.582	0.255	0.045	-	-	0.179	-	-	0.717	0.166		













Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



























HCM 2010 Signalized Intersection Summary  
3: Hilltop Road & Singing Hills Road

2036 Total  
AM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	15	875	200	155	790	15
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	2	2	2	0
Cap, veh/h	177	294	294	2980	2458	47
Arrive On Green	0.10	0.10	0.09	0.80	0.67	0.67
Sat Flow, veh/h	1774	1583	3442	3725	3643	70
Grp Volume(v), veh/h	16	921	217	168	425	423
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1863	1863	1850
Q Serve(g_s), s	0.8	10.0	6.2	0.9	9.6	9.6
Cycle Q Clear(g_c), s	0.8	10.0	6.2	0.9	9.6	9.6
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	177	294	294	2980	1257	1248
V/C Ratio(X)	0.09	3.14	0.74	0.06	0.34	0.34
Avail Cap(c_a), veh/h	177	294	551	2980	1257	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	40.7	44.6	2.1	6.9	6.9
Incr Delay (d2), s/veh	0.2	971.0	3.6	0.0	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	86.4	2.8	0.3	3.9	3.9
Lane Grp Delay (d), s/veh	41.1	1011.7	48.3	2.1	7.6	7.6
Lane Grp LOS	D	F	D	A	A	A
Approach Vol, veh/h	937			385	848	
Approach Delay, s/veh	995.1			28.1	7.6	
Approach LOS	F			C	A	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			12.5	85.0	72.5	
Change Period (Y+Rc), s			4.0	5.0	5.0	
Max Green Setting (Gmax), s			16.0	80.0	60.0	
Max Q Clear Time (g_c+I1), s			8.2	2.9	11.6	
Green Ext Time (p_c), s			0.4	7.0	6.9	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			437.7			
HCM 2010 LOS			F			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2036 Total  
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	125	115	70	30	615	275	200	250	40	100	125	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Cap, veh/h	395	1833	779	674	1707	808	397	705	300	179	463	197
Arrive On Green	0.06	0.49	0.49	0.03	0.46	0.46	0.12	0.19	0.19	0.05	0.12	0.12
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	136	121	76	33	647	299	217	272	43	109	136	109
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1721	1863	1583
Q Serve(g_s), s	3.1	1.4	2.1	0.8	9.4	9.5	7.7	5.3	1.9	2.6	2.8	5.4
Cycle Q Clear(g_c), s	3.1	1.4	2.1	0.8	9.4	9.5	7.7	5.3	1.9	2.6	2.8	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	395	1833	779	674	1707	808	397	705	300	179	463	197
V/C Ratio(X)	0.34	0.07	0.10	0.05	0.38	0.37	0.55	0.39	0.14	0.61	0.29	0.55
Avail Cap(c_a), veh/h	440	1833	779	778	1707	808	404	1123	477	415	1123	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	11.1	11.2	11.2	14.7	12.3	22.0	29.4	28.0	38.5	33.0	34.1
Incr Delay (d2), s/veh	0.5	0.1	0.2	0.0	0.6	1.3	1.5	0.3	0.2	3.3	0.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.2	0.6	0.8	0.3	4.0	3.5	3.5	2.5	0.7	1.2	1.3	2.2
Lane Grp Delay (d), s/veh	10.7	11.1	11.5	11.3	15.4	13.6	23.4	29.7	28.2	41.8	33.3	36.6
Lane Grp LOS	B	B	B	B	B	B	C	C	C	D	C	D
Approach Vol, veh/h		333			979			532			354	
Approach Delay, s/veh		11.0			14.7			27.1			36.9	
Approach LOS		B			B			C			D	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	9.9	45.8		7.1	43.0		14.7	20.7		9.3	15.3	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	7.0	38.0		7.0	38.0		10.0	25.0		10.0	25.0	
Max Q Clear Time (g_c+I1), s	5.1	4.1		2.8	11.5		9.7	7.3		4.6	7.4	
Green Ext Time (p_c), s	0.1	6.8		0.0	6.5		0.0	2.9		0.1	2.9	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			20.7									
HCM 2010 LOS			C									
<b>Notes</b>												

HCM 2010 TWSC  
 11: Madrid Drive & Singing Hills Road

2036 Total  
 AM Peak

Intersection												
Intersection Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	225	15	5	860	40	25	2	10	30	2	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	237	16	5	905	43	27	2	11	33	2	38
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	905	0	0	237	0	0	734	1185	118	1068	1185	453
Stage 1	-	-	-	-	-	-	269	269	-	916	916	-
Stage 2	-	-	-	-	-	-	465	916	-	152	269	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	747	-	-	1327	-	-	308	188	912	176	188	554
Stage 1	-	-	-	-	-	-	713	685	-	293	349	-
Stage 2	-	-	-	-	-	-	547	349	-	835	685	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	747	-	-	1327	-	-	279	183	912	169	183	554
Mov Capacity-2 Maneuver	-	-	-	-	-	-	279	183	-	169	183	-
Stage 1	-	-	-	-	-	-	698	670	-	287	348	-
Stage 2	-	-	-	-	-	-	504	348	-	805	670	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0			17.1			22		
HCM LOS	C			C			C			C		
Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	291	912	747	-	-	1327	-	-	208	554		
HCM Lane V/C Ratio	0.113	0.008	0.022	-	-	0.004	-	-	0.228	0.046		
HCM Control Delay (s)	18.9	9	9.927	-	-	7.724	-	-	27.4	11.8		
HCM Lane LOS	C	A	A			A			D	B		
HCM 95th %tile Q(veh)	0.379	0.024	0.067	-	-	0.012	-	-	0.851	0.144		

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 14: Thunder Hills Road & Singing Hills Road

























2036 Total  
 AM Peak

Intersection												
Intersection Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	250	5	3	820	5	10	2	5	15	2	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	263	5	3	863	5	11	2	5	16	2	82
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	863	0	0	263	0	0	735	1166	132	1035	1166	432
Stage 1	-	-	-	-	-	-	296	296	-	870	870	-
Stage 2	-	-	-	-	-	-	439	870	-	165	296	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	775	-	-	1298	-	-	308	193	893	186	193	572
Stage 1	-	-	-	-	-	-	688	667	-	313	367	-
Stage 2	-	-	-	-	-	-	567	367	-	821	667	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	775	-	-	1298	-	-	257	189	893	180	189	572
Mov Capacity-2 Maneuver	-	-	-	-	-	-	257	189	-	180	189	-
Stage 1	-	-	-	-	-	-	674	653	-	307	366	-
Stage 2	-	-	-	-	-	-	482	366	-	796	653	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.6	0			17.3			15.2				
HCM LOS					C			C				
Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	266	893	775	-	-	1298	-	-	305	572		
HCM Lane V/C Ratio	0.056	0.004	0.021	-	-	0.003	-	-	0.15	0.095		
HCM Control Delay (s)	19.3	9	9.745	-	-	7.78	-	-	18.9	12		
HCM Lane LOS	C	A	A			A			C	B		
HCM 95th %tile Q(veh)	0.176	0.012	0.064	-	-	0.008	-	-	0.52	0.313		

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined













HCM 2010 Signalized Intersection Summary  
 17: CR-13 & Singing Hills Road

2036 Total  
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	165	75	80	510	10	170	50	60	10	60	135
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6	167.6
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	415	1484	788	581	1551	659	377	395	336	268	229	232
Arrive On Green	0.03	0.44	0.44	0.05	0.46	0.46	0.11	0.24	0.24	0.01	0.14	0.14
Sat Flow, veh/h	1597	3353	1425	1597	3353	1425	1597	1676	1425	1597	1676	1425
Grp Volume(v), veh/h	33	179	82	87	537	11	185	54	65	11	65	147
Grp Sat Flow(s),veh/h/ln	1597	1676	1425	1597	1676	1425	1597	1676	1425	1597	1676	1425
Q Serve(g_s), s	0.8	2.4	2.1	2.1	7.8	0.3	6.2	1.9	2.8	0.4	2.6	7.3
Cycle Q Clear(g_c), s	0.8	2.4	2.1	2.1	7.8	0.3	6.2	1.9	2.8	0.4	2.6	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	1484	788	581	1551	659	377	395	336	268	229	232
V/C Ratio(X)	0.08	0.12	0.10	0.15	0.35	0.02	0.49	0.14	0.19	0.04	0.28	0.63
Avail Cap(c_a), veh/h	478	1484	788	655	1551	659	539	731	622	399	532	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.2	12.4	8.0	9.8	13.0	11.0	18.0	22.8	23.2	27.7	29.3	29.5
Incr Delay (d2), s/veh	0.1	0.2	0.3	0.1	0.6	0.0	1.0	0.2	0.3	0.1	0.7	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.3	0.9	0.6	0.7	2.7	0.1	2.2	0.7	0.9	0.2	1.1	2.6
Lane Grp Delay (d), s/veh	11.2	12.6	8.3	9.9	13.6	11.1	19.0	23.0	23.4	27.7	30.0	32.4
Lane Grp LOS	B	B	A	A	B	B	B	C	C	C	C	C
Approach Vol, veh/h		294			635			304			223	
Approach Delay, s/veh		11.2			13.1			20.7			31.5	
Approach LOS		B			B			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	7.0	38.5		8.5	40.0		13.3	22.8		5.8	15.3	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	5.0	33.0		7.0	35.0		16.0	33.0		7.0	24.0	
Max Q Clear Time (g_c+I1), s	2.8	4.4		4.1	9.8		8.2	4.8		2.4	9.3	
Green Ext Time (p_c), s	0.0	4.8		0.0	4.7		0.3	1.3		0.0	1.1	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.1								
HCM 2010 LOS				B								
<b>Notes</b>												

HCM 2010 Signalized Intersection Summary  
20: CR-13 & Hilltop Road

2036 Total  
AM Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	110	175	250	160	125	100
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	248	337	913	2859	2412	1025
Arrive On Green	0.14	0.14	0.07	0.77	0.21	0.21
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	120	190	272	174	136	109
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	5.4	9.2	4.0	1.0	2.5	4.8
Cycle Q Clear(g_c), s	5.4	9.2	4.0	1.0	2.5	4.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	248	337	913	2859	2412	1025
V/C Ratio(X)	0.48	0.56	0.30	0.06	0.06	0.11
Avail Cap(c_a), veh/h	536	595	1010	2859	2412	1025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.99	0.99
Uniform Delay (d), s/veh	34.1	30.3	3.5	2.4	12.9	13.8
Incr Delay (d2), s/veh	1.5	1.5	0.2	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.3	0.1	1.0	0.3	0.9	1.6
Lane Grp Delay (d), s/veh	35.6	31.7	3.7	2.5	12.9	14.0
Lane Grp LOS	D	C	A	A	B	B
Approach Vol, veh/h	310			446	245	
Approach Delay, s/veh	33.2			3.2	13.4	
Approach LOS	C			A	B	
<b>Timer</b>						
Assigned Phs			5	2	6	
Phs Duration (G+Y+Rc), s			10.3	70.0	59.7	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			11.0	66.0	51.0	
Max Q Clear Time (g_c+I1), s			6.0	3.0	6.8	
Green Ext Time (p_c), s			0.3	2.2	2.2	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			15.0			
HCM 2010 LOS			B			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	22	120	15	15	280	75	75	40	25	135	20	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	100	-	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	95	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	130	16	16	304	82	82	43	27	142	22	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	130	0	0	374	515	65	472	515	152
Stage 1	-	-	-	-	-	-	178	178	-	337	337	-
Stage 2	-	-	-	-	-	-	196	337	-	135	178	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1254	-	-	1453	-	-	558	462	986	475	462	867
Stage 1	-	-	-	-	-	-	806	751	-	651	640	-
Stage 2	-	-	-	-	-	-	787	640	-	854	751	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1254	-	-	1453	-	-	481	448	986	418	448	867
Mov Capacity-2 Maneuver	-	-	-	-	-	-	481	448	-	418	448	-
Stage 1	-	-	-	-	-	-	791	737	-	639	633	-
Stage 2	-	-	-	-	-	-	688	633	-	767	737	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.3	14.4	16.6
HCM LOS			B	C

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	486	986	1254	-	-	1453	-	-	452	867
HCM Lane V/C Ratio	0.276	0.018	0.019	-	-	0.011	-	-	0.416	0.056
HCM Control Delay (s)	15.2	8.7	7.927	-	-	7.506	-	-	18.5	9.4
HCM Lane LOS	C	A	A			A			C	A
HCM 95th %tile Q(veh)	1.114	0.056	0.058	-	-	0.034	-	-	2.016	0.178

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	80	5	10	375	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	5	11	408	11	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	87
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.22
Pot Capacity-1 Maneuver	-	-	1507
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1507
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10
HCM LOS			B

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	739	-	-	1507	-
HCM Lane V/C Ratio	0.022	-	-	0.007	-
HCM Control Delay (s)	10	-	-	7.406	-
HCM Lane LOS	B			A	
HCM 95th %tile Q(veh)	0.068	-	-	0.022	-













**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined



HCM 2010 Signalized Intersection Summary  
 29: Flintwood Road & Hilltop Road

2036 Total  
 AM Peak

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	360	475	30	75	120
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1
Cap, veh/h	464	480	1018	865	483	1189
Arrive On Green	0.26	0.26	0.55	0.55	0.04	0.64
Sat Flow, veh/h	1774	1583	1863	1583	1774	1863
Grp Volume(v), veh/h	43	379	516	33	82	130
Grp Sat Flow(s),veh/h/ln	1774	1583	1863	1583	1774	1863
Q Serve(g_s), s	1.5	17.5	13.9	0.8	1.5	2.2
Cycle Q Clear(g_c), s	1.5	17.5	13.9	0.8	1.5	2.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	464	480	1018	865	483	1189
V/C Ratio(X)	0.09	0.79	0.51	0.04	0.17	0.11
Avail Cap(c_a), veh/h	911	879	1018	865	586	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	25.5	11.4	8.4	8.0	5.6
Incr Delay (d2), s/veh	0.1	2.9	1.8	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.6	6.8	6.0	0.3	0.5	0.8
Lane Grp Delay (d), s/veh	22.4	28.4	13.2	8.5	8.2	5.8
Lane Grp LOS	C	C	B	A	A	A
Approach Vol, veh/h	422		549			212
Approach Delay, s/veh	27.8		12.9			6.7
Approach LOS	C		B			A
<b>Timer</b>						
Assigned Phs			2		1	6
Phs Duration (G+Y+Rc), s			47.6		7.4	55.0
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			39.0		8.0	51.0
Max Q Clear Time (g_c+I1), s			15.9		3.5	4.2
Green Ext Time (p_c), s			3.8		0.1	4.2
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			17.1			
HCM 2010 LOS			B			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	135	5	5	475	3	10	1	10	10	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	147	5	5	516	3	11	1	11	11	1	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	516	0	0	147	0	0	430	687	73	614	687	258
Stage 1	-	-	-	-	-	-	160	160	-	527	527	-
Stage 2	-	-	-	-	-	-	270	527	-	87	160	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1046	-	-	1432	-	-	509	368	974	376	368	741
Stage 1	-	-	-	-	-	-	826	764	-	502	527	-
Stage 2	-	-	-	-	-	-	713	527	-	911	764	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1046	-	-	1432	-	-	490	364	974	368	364	741
Mov Capacity-2 Maneuver	-	-	-	-	-	-	490	364	-	368	364	-
Stage 1	-	-	-	-	-	-	820	759	-	499	525	-
Stage 2	-	-	-	-	-	-	689	525	-	894	759	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3	-	-	0.1	-	-	10.9	-	-	11.9	-	-
HCM LOS	-	-	-	-	-	-	B	-	-	B	-	-

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	539	974	1046	-	-	1432	-	-	451	741
HCM Lane V/C Ratio	0.029	0.007	0.006	-	-	0.004	-	-	0.042	0.019
HCM Control Delay (s)	11.9	8.7	8.463	-	-	7.524	-	-	13.3	10
HCM Lane LOS	B	A	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.089	0.022	0.019	-	-	0.011	-	-	0.13	0.057

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	20	65	350	97	81	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	300	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	71	380	105	88	38

**Major/Minor**

	Major1	Major2	Minor2
Conflicting Flow All	380	0	190
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	2.22	-	3.32
Pot Capacity-1 Maneuver	1175	-	820
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	1175	-	820
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

**Approach**

	EB	WB	SB
HCM Control Delay, s	1.9	0	12.2
HCM LOS			B

**Minor Lane / Major Mvmt**

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1175	-	-	-	521	820
HCM Lane V/C Ratio	0.019	-	-	-	0.169	0.046
HCM Control Delay (s)	8.122	-	-	-	13.3	9.6
HCM Lane LOS	A				B	A
HCM 95th %tile Q(veh)	0.057	-	-	-	0.603	0.146

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
1: Flintwood Road & Singing Hills Road

2036 Total  
PM Peak

Intersection												
Intersection Delay, s/veh	3.3											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	40	805	10	135	375	10	5	10	75	5	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	847	11	147	395	11	5	11	82	5	11	22
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	395	0	0	847	0	0	1430	1622	424	1204	1622	197
Stage 1	-	-	-	-	-	-	934	934	-	688	688	-
Stage 2	-	-	-	-	-	-	496	688	-	516	934	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1160	-	-	786	-	-	95	102	579	140	102	811
Stage 1	-	-	-	-	-	-	286	343	-	403	445	-
Stage 2	-	-	-	-	-	-	524	445	-	510	343	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1160	-	-	786	-	-	69	80	579	90	80	811
Mov Capacity-2 Maneuver	-	-	-	-	-	-	69	80	-	90	80	-
Stage 1	-	-	-	-	-	-	275	330	-	388	362	-
Stage 2	-	-	-	-	-	-	402	362	-	408	330	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.4			2.8			21.8			31		
HCM LOS	D			B			C			D		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>NBLn2</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>	<b>SBLn2</b>		
Capacity (veh/h)	166	579	1160	-	-	786	-	-	115	811		
HCM Lane V/C Ratio	0.262	0.094	0.037	-	-	0.187	-	-	0.205	0.018		
HCM Control Delay (s)	34.2	11.9	8.224	-	-	10.629	-	-	44.2	9.5		
HCM Lane LOS	D	B	A			B			E	A		
HCM 95th %tile Q(veh)	0.999	0.309	0.117	-	-	0.683	-	-	0.726	0.055		













Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

# HCM 2010 Signalized Intersection Summary

























## 3: Hilltop Road & Singing Hills Road

2036 Total  
PM Peak

						
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	15	375	850	820	300	15
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	1	2	2	2	0
Cap, veh/h	177	634	1034	2980	1619	79
Arrive On Green	0.10	0.10	0.30	0.80	0.46	0.46
Sat Flow, veh/h	1774	1583	3442	3725	3523	172
Grp Volume(v), veh/h	16	395	895	863	172	170
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1863	1863	1832
Q Serve(g_s), s	0.8	10.0	24.6	6.0	5.5	5.5
Cycle Q Clear(g_c), s	0.8	10.0	24.6	6.0	5.5	5.5
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	177	634	1034	2980	856	842
V/C Ratio(X)	0.09	0.62	0.87	0.29	0.20	0.20
Avail Cap(c_a), veh/h	177	634	1755	2980	856	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	23.9	33.1	2.6	16.1	16.1
Incr Delay (d2), s/veh	0.2	1.9	2.5	0.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	7.7	10.6	1.8	2.5	2.5
Lane Grp Delay (d), s/veh	41.1	25.8	35.6	2.8	16.6	16.6
Lane Grp LOS	D	C	D	A	B	B
Approach Vol, veh/h	411			1758	342	
Approach Delay, s/veh	26.4			19.5	16.6	
Approach LOS	C			B	B	
<b>Timer</b>						
Assigned Phs			1	6	2	
Phs Duration (G+Y+Rc), s			34.0	85.0	51.0	
Change Period (Y+Rc), s			4.0	5.0	5.0	
Max Green Setting (Gmax), s			51.0	80.0	25.0	
Max Q Clear Time (g_c+I1), s			26.6	8.0	7.5	
Green Ext Time (p_c), s			3.5	9.5	7.0	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			20.2			
HCM 2010 LOS			C			
<b>Notes</b>						

HCM 2010 Signalized Intersection Summary  
8: Delbert Road & Singing Hills Road

2036 Total  
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	150	510	225	35	225	150	150	150	25	375	250	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Cap, veh/h	582	1691	719	391	1528	892	365	417	177	528	606	258
Arrive On Green	0.07	0.45	0.45	0.03	0.41	0.41	0.10	0.11	0.11	0.15	0.16	0.16
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	163	537	245	38	237	163	163	163	27	408	272	163
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1721	1863	1583
Q Serve(g_s), s	3.8	7.3	7.9	1.0	3.2	4.0	6.3	3.2	1.2	9.0	5.2	7.6
Cycle Q Clear(g_c), s	3.8	7.3	7.9	1.0	3.2	4.0	6.3	3.2	1.2	9.0	5.2	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	582	1691	719	391	1528	892	365	417	177	528	606	258
V/C Ratio(X)	0.28	0.32	0.34	0.10	0.16	0.18	0.45	0.39	0.15	0.77	0.45	0.63
Avail Cap(c_a), veh/h	677	1691	719	429	1528	892	406	798	339	998	1409	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	13.8	14.0	12.9	14.7	8.4	26.9	32.7	31.8	32.2	30.0	31.0
Incr Delay (d2), s/veh	0.3	0.5	1.3	0.1	0.2	0.5	0.9	0.6	0.4	2.4	0.5	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.4	3.1	3.0	0.4	1.4	1.3	2.8	1.5	0.5	3.9	2.4	3.0
Lane Grp Delay (d), s/veh	10.2	14.3	15.3	13.0	15.0	8.9	27.8	33.3	32.2	34.7	30.5	33.6
Lane Grp LOS	B	B	B	B	B	A	C	C	C	C	C	C
Approach Vol, veh/h		945			438			353			843	
Approach Delay, s/veh		13.9			12.5			30.7			33.1	
Approach LOS		B			B			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	10.7	41.0		7.3	37.5		13.1	13.9		17.2	17.9	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	10.0	36.0		4.0	30.0		10.0	17.0		23.0	30.0	
Max Q Clear Time (g_c+I1), s	5.8	9.9		3.0	6.0		8.3	5.2		11.0	9.6	
Green Ext Time (p_c), s	0.1	6.6		0.0	6.4		0.1	2.7		1.1	3.3	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			22.2									
HCM 2010 LOS			C									
<b>Notes</b>												

HCM 2010 TWSC  
 11: Madrid Drive & Singing Hills Road

2036 Total  
 PM Peak

Intersection

Intersection Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	855	25	10	375	25	25	2	15	50	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	565	-	0	400	-	850	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	891	27	11	395	27	27	2	16	54	2	16

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	395	0	0	891
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.22	-	-	2.22
Pot Capacity-1 Maneuver	1160	-	-	757
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1160	-	-	757
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	28.9	25.3
HCM LOS			D	D

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	157	561	1160	-	-	757	-	-	217	811
HCM Lane V/C Ratio	0.222	0.019	0.028	-	-	0.014	-	-	0.286	0.013
HCM Control Delay (s)	34.3	11.5	8.193	-	-	9.825	-	-	28.1	9.5
HCM Lane LOS	D	B	A			A			D	A
HCM 95th %tile Q(veh)	0.811	0.059	0.087	-	-	0.044	-	-	1.133	0.041

Notes

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC  
 14: Thunder Hills Road & Singing Hills Road

2036 Total  
 PM Peak

























Intersection												
Intersection Delay, s/veh	1.2											
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
Vol, veh/h	75	835	10	5	380	10	5	2	3	10	2	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	92	92	95	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	879	11	5	400	11	5	2	3	11	2	27
<b>Major/Minor</b>	<b>Major1</b>			<b>Major2</b>			<b>Minor1</b>			<b>Minor2</b>		
Conflicting Flow All	400	0	0	879	0	0	1254	1453	439	1015	1453	200
Stage 1	-	-	-	-	-	-	1042	1042	-	411	411	-
Stage 2	-	-	-	-	-	-	212	411	-	604	1042	-
Follow-up Headway	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Capacity-1 Maneuver	1155	-	-	764	-	-	128	129	566	192	129	808
Stage 1	-	-	-	-	-	-	246	305	-	589	593	-
Stage 2	-	-	-	-	-	-	770	593	-	452	305	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	1155	-	-	764	-	-	115	119	566	177	119	808
Mov Capacity-2 Maneuver	-	-	-	-	-	-	115	119	-	177	119	-
Stage 1	-	-	-	-	-	-	229	283	-	547	589	-
Stage 2	-	-	-	-	-	-	737	589	-	414	283	-
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
HCM Control Delay, s	0.7			0.1			30.2			16		
HCM LOS	D			D			D			C		
<b>Minor Lane / Major Mvmt</b>	<b>NBLn1</b>	<b>NBLn2</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>	<b>SBLn2</b>		
Capacity (veh/h)	129	566	1155	-	-	764	-	-	243	808		
HCM Lane V/C Ratio	0.067	0.004	0.071	-	-	0.007	-	-	0.091	0.022		
HCM Control Delay (s)	34.9	11.4	8.353	-	-	9.746	-	-	21.3	9.6		
HCM Lane LOS	D	B	A			A			C	A		
HCM 95th %tile Q(veh)	0.214	0.012	0.227	-	-	0.021	-	-	0.297	0.069		

Notes  
 ~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined















HCM 2010 Signalized Intersection Summary  
 17: CR-13 & Singing Hills Road

2036 Total  
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	140	575	135	60	200	20	125	50	60	20	50	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	809	2158	1052	520	2075	882	314	271	231	233	149	225
Arrive On Green	0.06	0.58	0.58	0.04	0.56	0.56	0.09	0.15	0.15	0.02	0.08	0.08
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	152	605	147	65	217	22	136	54	65	22	54	76
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.5	6.1	2.5	1.1	2.0	0.5	4.6	1.9	2.7	0.8	2.0	3.2
Cycle Q Clear(g_c), s	2.5	6.1	2.5	1.1	2.0	0.5	4.6	1.9	2.7	0.8	2.0	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	809	2158	1052	520	2075	882	314	271	231	233	149	225
V/C Ratio(X)	0.19	0.28	0.14	0.13	0.10	0.02	0.43	0.20	0.28	0.09	0.36	0.34
Avail Cap(c_a), veh/h	1201	2158	1052	641	2075	882	498	728	619	294	477	504
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.3	7.8	4.6	6.4	7.7	7.4	22.7	27.9	28.2	30.5	32.3	28.7
Incr Delay (d2), s/veh	0.1	0.3	0.3	0.1	0.1	0.1	0.9	0.4	0.7	0.2	1.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	2.4	0.7	0.4	0.7	0.1	1.9	0.8	1.0	0.4	1.0	1.2
Lane Grp Delay (d), s/veh	5.4	8.2	4.9	6.5	7.8	7.4	23.7	28.2	28.9	30.6	33.8	29.6
Lane Grp LOS	A	A	A	A	A	A	C	C	C	C	C	C
Approach Vol, veh/h		904			304			255			152	
Approach Delay, s/veh		7.2			7.5			26.0			31.2	
Approach LOS		A			A			C			C	
<b>Timer</b>												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	8.6	47.0		7.0	45.3		10.3	14.8		5.5	9.9	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	21.0	43.0		8.0	30.0		14.0	29.0		4.0	19.0	
Max Q Clear Time (g_c+I1), s	4.5	8.1		3.1	4.0		6.6	4.7		2.8	5.2	
Green Ext Time (p_c), s	0.3	6.3		0.0	5.9		0.2	0.9		0.0	0.8	
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.5									
HCM 2010 LOS			B									
<b>Notes</b>												

HCM 2010 Signalized Intersection Summary  
20: CR-13 & Hilltop Road

2036 Total  
PM Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	75	250	175	165	175	75
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	2	2	1
Cap, veh/h	332	390	825	2702	2316	984
Arrive On Green	0.19	0.19	0.06	0.73	0.21	0.21
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	82	272	190	179	190	82
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	3.6	14.2	3.2	1.3	3.8	3.8
Cycle Q Clear(g_c), s	3.6	14.2	3.2	1.3	3.8	3.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	332	390	825	2702	2316	984
V/C Ratio(X)	0.25	0.70	0.23	0.07	0.08	0.08
Avail Cap(c_a), veh/h	507	547	934	2702	2316	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.99	0.99
Uniform Delay (d), s/veh	31.5	31.2	4.7	3.6	15.2	15.2
Incr Delay (d2), s/veh	0.4	2.3	0.1	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.5	0.2	0.9	0.4	1.5	1.3
Lane Grp Delay (d), s/veh	31.9	33.4	4.9	3.7	15.2	15.4
Lane Grp LOS	C	C	A	A	B	B
Approach Vol, veh/h	354			369	272	
Approach Delay, s/veh	33.1			4.3	15.3	
Approach LOS	C			A	B	
<b>Timer</b>						
Assigned Phs			5	2	6	
Phs Duration (G+Y+Rc), s			9.4	70.0	60.6	
Change Period (Y+Rc), s			4.0	4.0	4.0	
Max Green Setting (Gmax), s			11.0	66.0	51.0	
Max Q Clear Time (g_c+I1), s			5.2	3.3	5.8	
Green Ext Time (p_c), s			0.2	2.5	2.5	
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			17.5			
HCM 2010 LOS			B			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	75	220	75	25	100	150	25	30	15	115	45	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	0	150	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	95	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	239	82	27	109	163	27	33	16	121	49	48

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	109	0	0	239
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.22	-	-	2.22
Pot Capacity-1 Maneuver	1479	-	-	1325
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1479	-	-	1325
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.7	14.9	17.7
HCM LOS			B	C

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	395	909	1479	-	-	1325	-	-	436	1002
HCM Lane V/C Ratio	0.165	0.012	0.055	-	-	0.021	-	-	0.426	0.032
HCM Control Delay (s)	15.9	9	7.576	-	-	7.774	-	-	19.3	8.7
HCM Lane LOS	C	A	A			A			C	A
HCM 95th %tile Q(veh)	0.585	0.036	0.175	-	-	0.063	-	-	2.09	0.099

**Notes**

~ : Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined

**Intersection**

Intersection Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	375	10	5	150	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	408	11	5	163	5	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	408
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2.22
Pot Capacity-1 Maneuver	-	-	1147
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1147
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	10.5
HCM LOS			B













Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	667	-	-	1147	-
HCM Lane V/C Ratio	0.024	-	-	0.005	-
HCM Control Delay (s)	10.5	-	-	8.154	-
HCM Lane LOS	B			A	
HCM 95th %tile Q(veh)	0.075	-	-	0.014	-

**Notes**

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HCM 2010 Signalized Intersection Summary  
 29: Flintwood Road & Hilltop Road

2036 Total  
 PM Peak

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	35	130	250	40	360	370
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	1	1	1
Cap, veh/h	181	303	1268	1078	898	1513
Arrive On Green	0.10	0.10	0.68	0.68	0.09	0.81
Sat Flow, veh/h	1774	1583	1863	1583	1774	1863
Grp Volume(v), veh/h	38	141	272	43	391	402
Grp Sat Flow(s),veh/h/ln	1774	1583	1863	1583	1774	1863
Q Serve(g_s), s	1.8	7.4	5.1	0.8	5.5	4.8
Cycle Q Clear(g_c), s	1.8	7.4	5.1	0.8	5.5	4.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	181	303	1268	1078	898	1513
V/C Ratio(X)	0.21	0.47	0.21	0.04	0.44	0.27
Avail Cap(c_a), veh/h	303	412	1268	1078	1044	1513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	33.6	5.6	4.9	3.1	2.1
Incr Delay (d2), s/veh	0.6	1.1	0.4	0.1	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	2.9	1.9	0.3	1.6	1.4
Lane Grp Delay (d), s/veh	39.1	34.7	6.0	5.0	3.4	2.5
Lane Grp LOS	D	C	A	A	A	A
Approach Vol, veh/h	179		315			793
Approach Delay, s/veh	35.6		5.8			3.0
Approach LOS	D		A			A
<b>Timer</b>						
Assigned Phs			2		1	6
Phs Duration (G+Y+Rc), s			67.7		12.3	80.0
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			56.0		16.0	76.0
Max Q Clear Time (g_c+I1), s			7.1		7.5	6.8
Green Ext Time (p_c), s			4.2		0.8	4.3
<b>Intersection Summary</b>						
HCM 2010 Ctrl Delay			8.2			
HCM 2010 LOS			A			
<b>Notes</b>						

**Intersection**

Intersection Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	350	10	10	150	11	5	1	5	16	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	380	11	11	163	12	5	1	5	17	1	13

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	163	0	0	380
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.22	-	-	2.22
Pot Capacity-1 Maneuver	1413	-	-	1175
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	1413	-	-	1175
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.5	11.8	11
HCM LOS			B	B

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	463	820	1413	-	-	1175	-	-	546	961
HCM Lane V/C Ratio	0.018	0.004	0.016	-	-	0.009	-	-	0.042	0.009
HCM Control Delay (s)	12.9	9.4	7.59	-	-	8.092	-	-	11.9	8.8
HCM Lane LOS	B	A	A			A			B	A
HCM 95th %tile Q(veh)	0.055	0.013	0.049	-	-	0.028	-	-	0.131	0.027

**Notes**

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**Intersection**

Intersection Delay, s/veh 1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	33	350	135	30	30	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	380	147	33	33	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	147	0	73
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	2.22	-	3.32
Pot Capacity-1 Maneuver	1432	-	974
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	1432	-	974
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.7
HCM LOS			B

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1432	-	-	-	556	974
HCM Lane V/C Ratio	0.025	-	-	-	0.059	0.022
HCM Control Delay (s)	7.579	-	-	-	11.9	8.8
HCM Lane LOS	A				B	A
HCM 95th %tile Q(veh)	0.077	-	-	-	0.186	0.068

**Notes**

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